CHAPTER 15

LIFE PRESERVER ASSEMBLIES LPU-21D/P AND LPU-35/P

Section 15-1. Description

15-1. GENERAL.

WARNING

LPU-21/P Series life preserver assemblies shall not be used in aircraft equipped with ejection seats.

NOTE

The LPU-35/P Life Preserver is a modified LPU-21D/P Life Preserver (extension panel added). Unless otherwise indicated all references to and maintenance requirements of LPU-21D/P also apply to the LPU-35/P Life Preserver.

15-2. The LPU-21D/P life preserver assembly is authorized for use by all aircrew personnel wearing compatible flight clothing. It is designed as a constant wear item for use with the SV-2B Survival Vest.

15-3. CONFIGURATION.

WARNING

LPU-21/P life preserver assemblies shall not be configured with the FLU-8/P series automatic inflation device.

15-4. Incorporation of the beaded inflation handle assembly improved activating lanyard accessibility. It also provided the inflation system with a multidirectional pull capability. Further improvements in the LPU-21/P series have resulted in the updated LPU-21D/P life preserver which features a heat sealed flotation bladder.

NOTE

The LPU-21C/P flotation assembly may be used in conjunction with the LPU-21D/P casing assembly. This configuration has been designated LPU-21C(V)1/P. See Chapter 26.

CAUTION

Only Polyurethane adhesives and Polyurethane-coated cloth and patches shall be used on Polyurethane-coated LPU-21D/P life preserver assemblies.

15-5. The LPU-21D/P Life Preserver weighs four pounds (without survival items). It consists of a casing assembly, flotation assembly, and carbon dioxide (CO_2) inflation assemblies. Two independent flotation chambers provide a combined minimum buoyancy of 65 pounds. One chamber consists of the left waist lobe joined by a channel to the right collar lobe. The other chamber is comprised of the right waist lobe joined by a channel to the left collar lobe. The two chambers are sewn together at the center seam flash of the collar lobes. Each chamber is serviced by a CO_2 inflation assembly and an oral inflation valve which are installed in each waist lobe (see figures 15-1 and 15-2.)

15-6. The design of the heat sealed inflation chambers provides an integral protective pocket for the oral inflation valve. The pocket consists of a narrow open-end sleeve extending from the upper seam of each waist lobe bladder (figure 15-2). When folded at its root toward the oral inflation valve, the sleeve becomes a pocket positioned for insertion of the valve.

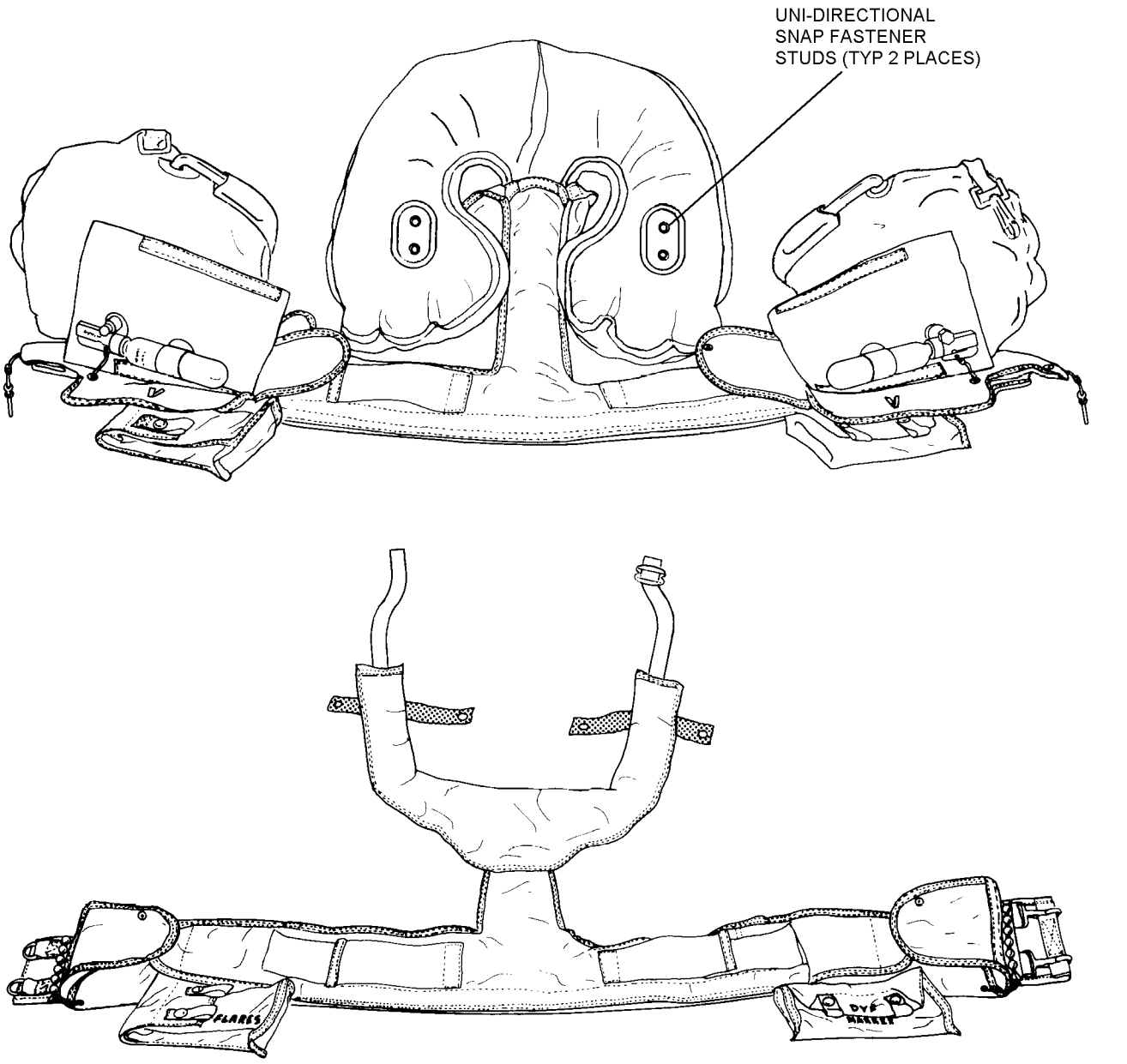

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Figure 15-1. LPU-21D/P Life Preserver Assembly

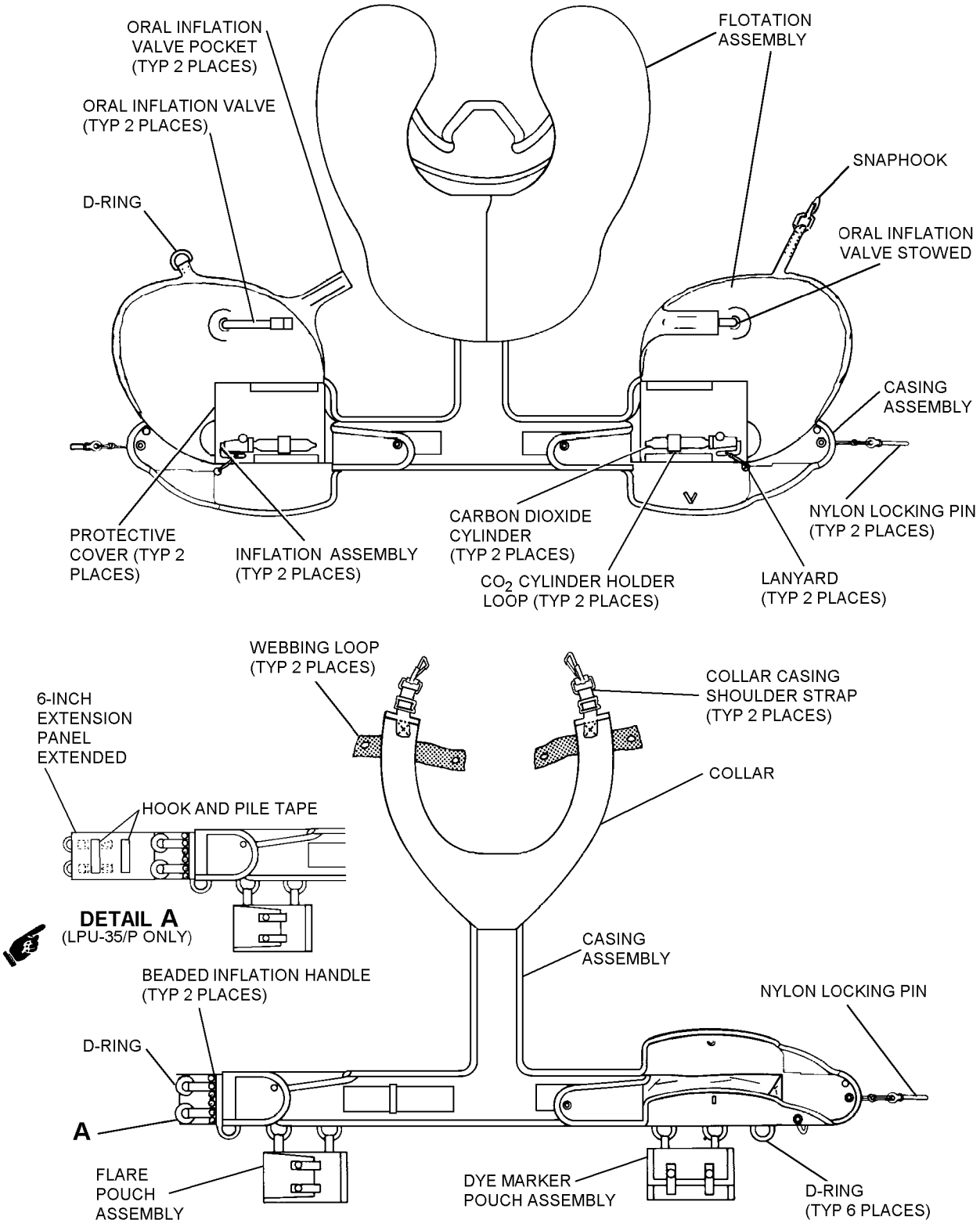

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Figure 15-2. LPU-21D/P and LPU-35/P Life Preserver Assembly, Parts Nomenclature

15-7. Attached to each waist lobe of the flotation assembly is an attachment patch with six uni-directional snap fastener sockets installed. These snap fastener sockets, when mated to six uni-directional snap fastener studs on the casing assembly, secure the waist lobes of the flotation assembly to the casing assembly. The right waist lobe is equipped with a snaphook which connects with a D-ring on the left waist lobe to secure the lobes together after inflation.

NOTE

The uni-directional snap fastener socket is installed with the dot on its button oriented to the side of the fastener on which lift must be applied to disengage the socket from the snap fastener stud.

15-8. Two uni-directional snap fastener studs, whose centers are 1 1/4 inches apart, are installed on each collar lobe of the flotation assembly. The snap fastener studs connect with two uni-directional snap fastener sockets on the casing collar assembly to secure the flotation collar lobes to the casing collar assembly. The dots on the two buttons of the casing assembly uni-directional snap fastener sockets are oriented to the inside, facing each other. To disengage the sockets from the uni-directional snap fastener studs, insert one finger beneath the edge of the casing fabric between the two snap fasteners and apply lift.

15-9. CASING ASSEMBLY. The casing assembly, which is constructed of fire retardant aramid cloth, provides a protective cover for the flotation assembly. The casing assembly consists of the adjustable casing, belt keeper loops, uni-directional snap fastener sockets on the collar assembly (which mate with snap fastener studs on the collar lobes), uni-directional snap fastener studs on the inside waist portion (which mate with snap fastener sockets on the waist lobes), and the front connector assembly.

15-9A. The LPU-35/P has a six-inch extension panel added to the waist portion of the casing assembly which, when extended, permits wearing the LPU-35/P over heavy/winter flight clothing.

15-10. The webbing belt, which was a part of the LPU-21A, -21B and -21C/P has been deleted from the LPU-21D/P. Webbing belt keeper loops have been retained and provide a means for attaching the survival vest about the wearer's waist. Six D-rings attached to the webbing belt keeper loops provide attach points for the life raft retaining line and other accessories.

15-11. Hook and pile tapes, attached to the outside waist portion of the casing, are used for slack adjustment. In addition, hook and pile tapes, attached about the periphery of the collar casing and the lower edge of the back portion of the casing, are used to enclose the casing assembly about the flotation assembly.

15-12. The front connector assembly secures the casing assembly about the wearer's waist. The front connector assembly consists of two snap-hooks and two D-rings backed by webbing pads to prevent abrasion and discomfort.

15-13. FLOTATION ASSEMBLY. The flotation assembly is constructed of polyurethane coated nylon and consists of two independent flotation chambers. The waist lobe of each chamber contains an oral inflation valve and a primary valve stem upon which the inflation assembly is installed. A check valve is installed in the valve stem to prevent back-pressure leakage. There are two snap fastener studs affixed to each collar lobe which mate with uni-directional snap fastener sockets on the casing assembly. Attached to each waist lobe is an attachment patch containing six uni-directional snap fastener sockets which secure the waist lobes to the casing assembly. Each of the six snap fasteners of the attachment patch requires lift from a different direction (figure 15-10) to disengage flotation lobe from casing assembly. This is a safety factor to prevent separation of the flotation lobe upon impact when entering the water from a height.

NOTE

The uni-directional snap fastener socket is installed with the dot on its button oriented to the side of the fastener on which lift must be applied to disengage the socket from the snap fastener stud.

15-14. INFLATION ASSEMBLY. A carbon dioxide (CO_2) inflation assembly services each of the inflation chambers of the flotation assembly. The inflation assembly consists of the body (inflator) of the assembly, upper and lower pressure-seal gaskets, and a cap nut which secures the inflator to the valve stem installed in the waist lobe and serves as a cap for the valve stem. The assembly also includes a 35 gram Type III carbon dioxide cylinder which is threaded, with an O-ring, into the inflator body. An inflation lanyard attached to the actuating lever of the inflation assembly connects with the beaded inflation handle and the nylon locking pin of the casing assembly.

15-15. APPLICATION.

15-16. The LPU-21D/P life preserver is authorized for use only by aircrew personnel in aircraft without ejection seat systems. It was designed for use as a constant wear item with the SV-2 survival vest system by aircrew personnel wearing compatible flight clothing.

NOTE

Compatible flight clothing for LPU-35/P includes heavy/winter flight clothing.

15-17. FUNCTION.

NOTE

Although the beaded inflation handle provides a multidirectional capability for initiating inflation of the life preserver, only the most effective and commonly used method is discussed here.

15-18. Inflation of the LPU-21D/P life preserver is initiated by pulling both beaded inflation handles in a natural, slightly down and straight out direction away from the body. The resulting action removes the nylon locking pins, which secure the casing assembly about the waist lobes, and actuates the inflation assembly. As the flotation assembly inflates, the hook and pile tapes securing the casing assembly about the collar separate to free the collar lobes. After inflation, the flotation assembly D-ring and snaphook on the waist lobes must then be connected by the wearer.

NOTE

After each functional inflation, the CO_2 cylinder and seat seal gasket must be replaced with a charged CO_2 cylinder and a new seat seal gasket.

The casing must be manually opened and the flotation assembly unfolded prior to inflating a preserver through the oral inflation valve.

15-19. In an emergency situation, the oral inflation valves may be used to top-off an inflated preserver, maintain inflation of a leaky preserver or inflate a chamber if an inflation assembly malfunctions. The oral inflation valves are also used to inflate a preserver with air during an inspection test and to evacuate a preserver in preparation for packing.

15-20. Survival item pouches are attached to the life preserver casing. The dye marker and signal flares are not initially supplied and must be individually requisitioned. Refer to table 15-1 and see figures 15-1 and 15-2.

Table 15-1. LPU-21D/P Survival Items

Description	Quantity Required	Reference Number	NIIN	SM&R Code
Dye Marker (Note 1)	2	MIL-S-17980	00-270-9986	PAOZZ
Signal, Smoke and Illumination, Marine MK-124 MOD 0 (Note 1)	2	—	01-030-8330	PA--Z

Notes: 1. Optional equipment at the discretion of the Squadron Commander.

Section 15-2. Modifications

15-21. GENERAL.

15-22. Refer to table 15-2 for current modifications to the LPU-21D/P Life Preserver.

15-23. There are no other modifications currently authorized for LPU-21D/P.

Table 15-2. LPU-21D/P Directives

Description	Application	Modification Code
Fabrication and Installation of Casing Extension Panel	LPU-21D/P Life Preservers (Note 1)	ACC 523 Rev A
Notes: 1. After modification, the LPU-21D/P shall be redesignated as LPU-35/P Life Preserver.		

Section 15-3. Maintenance

15-24. GENERAL.

15-25. This section contains information on inspection, disassembly, repair/replacement, testing, and reassembly of the LPU-21D/P life preserver.

15-26. INSPECTION.

15-27. All life preservers shall be subjected to Preflight, Special and Calendar/Phase Inspections.

15-28. The Preflight Inspection shall be performed on life preservers prior to each flight by the aircrewmember to whom the life preserver is assigned. The Preflight Inspection shall be performed on life preservers installed in aircraft prior to each flight by assigned aircrewmembers.

15-29. The Special Inspection shall be performed on all aircraft installed life preservers at intervals not to exceed 30 days. The inspection shall be performed at the organizational level of maintenance by personnel assigned to the Aviator's Equipment Branch.

15-30. Upon completion of the inspection, make necessary entries on the appropriate form in accordance with OPNAVINST 4790.2 Series. The 30-Day Special Inspection may be recorded on a separate history card from the history card recording Calendar/Phase Inspections, functional checks, and modifications.

NOTE

The Calendar Inspection interval for preservers assigned selected air reserve aircrewmembers has been extended to 180 days vice 90 days, providing preservers are stowed under controlled conditions.

15-31. The Calendar/Phase Inspection shall be performed on all life preservers prior to placing in service. The inspection cycle thereafter shall be as follows: personal issue life preservers shall be inspected once every 90 days. Aircraft-installed life preserver inspection shall coincide with the inspection cycle of the aircraft in which installed. See applicable Planned Maintenance System (PMS) publications for specific intervals. In no case shall the interval exceed 231 days. Unless operational requirements demand otherwise, the life preserver Calendar/Phase Inspection shall be performed by the intermediate level of maintenance or above. The functional test shall be performed prior to placing in service, every fourth inspection cycle thereafter, and whenever an inflation assembly is replaced. The leakage test shall be performed during every inspection cycle. If inspection indicates damage, complete appropriate forms in accordance with OPNAVINST 4790.2 Series and forward entire assembly to supply. Refer to paragraph 15-59 for determination of repairability.

15-32. QUALITY ASSURANCE. Properly detailed procedures present a logical sequence for the inspection process. The more critical procedures are underlined to designate steps which require a Quality Assurance inspection to assure performance of specific requirements. After the underlined step is performed by the Aircrew Survival Equipmentman, the procedure shall be verified before the next step is performed. This verification shall be performed by a Collateral Duty Inspector or Quality Assurance Representative (CDI, CDQAR, or QAR). Work Center supervisors are primarily responsible for quality assurance within their centers. OPNAVINST 4790.2 Series permits supervisors to nominate their more experienced personnel to serve as quality assurance inspectors. Nominated personnel shall be screened and examined by the Quality Assurance Officer prior to their designation as Quality Assurance Inspectors or Quality Assurance Representatives by the Commanding Officer. Under no circumstances shall an Aircrew Survival Equipmentman perform his own quality assurance inspection.

15-33. PREFLIGHT/SPECIAL INSPECTION. To perform a Preflight/Special Inspection, proceed as follows:

CAUTION

Do not open any sealed or safety-wired/safety tied portions of preserver for Preflight/Special Inspection.

1. Inspect exposed metal parts for corrosion and damage.

2. Inspect for presence, security of attachment and, if applicable, operation of survival items.

3. Inspect casing fabric for cuts, tears, abrasions, security of stitching, and other damage.

4. Ensure beaded inflation handles are secured to snap fasteners. Inspect safety ties on beaded inflation handles. The beaded inflation handle safety ties may be replaced without removing the life preserver from service.

5. Inspect safety ties on locking pins.

6. Inspect rivets securing flotation assembly to casing for presence and security of attachment.

7. Inspect uni-directional snap fasteners securing flotation assembly to casing assembly for presence, security of attachment, corrosion, and ease of operation.

8. Inspect hook and pile tape closure at collar for separation; fasten as necessary.

9. Adjust and don preserver to ensure proper fit.

10. If any discrepancy is noted, the preserver shall be removed from service and repaired in accordance with procedures in this volume.

15-34. ACCEPTANCE/CALENDAR/PHASE INSPECTION. The Acceptance/Calendar/Phase Inspection consists of the following tasks:

1. Beaded Inflation Handle Inspection

2. Case, Container/Pouch Inspection

3. Functional Test (every fourth inspection cycle)

4. Visual Inspection

5. Life Preserver Configuration

6. General Inspection

7. Markings Inspection

8. Survival Items Inspection

9. Inflation Assembly Inspection

10. Beaded Inflation Handle Pull Test

11. Leakage Test

12. Records Updating

13. Repacking

15-35. BEADED INFLATION HANDLE INSPECTION. Inspect beaded inflation handle for the following:

1. Attachment of inflation lanyard to beaded handle.

2. Attachment of locking pin lanyard to beaded handle. Overhand knot on locking pin lanyard shall be within 3/4 inch from eye of pin.

3. Corrosion on snap fasteners and ease of operation.

4. Cuts, tears, deterioration, abrasion, stains, and general cleanliness of fabric.

5. Presence of safety tie on beaded inflation handle.

15-36. CASE, CONTAINER/POUCH INSPECTION. To inspect cases, containers, and/or pouches, proceed as follows:

1. Inspect fabric for cuts, tears, deterioration, abrasion, stains, and general cleanliness.

2. Inspect seams for proper adhesion or stitching.

3. Inspect straps and loops for security and wear. Inspect tackings on the collar casing shoulder straps for security.

4. Inspect any other parts for wear, damage, and security.

NOTE

Life preservers missing the D-rings used to attach dye marker and flare pouches shall be considered serviceable provided the aircrewmember to whom it is issued does not desire to utilize the pouches.

5. All hardware for security of attachment, corrosion, damage, wear and, if applicable, ease of operation.

6. Inspect uni-directional snap fastener assemblies for presence, security of attachment, proper orientation, ease of operation, corrosion, and wear.

NOTE

All uni-directional snap fasteners shall be installed with the dot on the button of the snap fastener socket positioned on the side of the snap fastener to which lift must be applied to disengage the socket from the snap fastener stud.

All snap fasteners on the attachment patch of each flotation lobe shall be installed with the dot on each socket button positioned nearest to, and pointing toward, the center point of the attachment patch.

7. If any discrepancies are found, the case, container, or pouch shall be repaired or removed from service as deemed appropriate by the inspection activity.

15-37. FUNCTIONAL TEST. To perform a functional test, proceed as follows:

CAUTION

Ensure area surrounding preserver is free of foreign objects.

1. Completely open preserver casing prior to conducting functional test. Both release pins shall be removed from their respective loops, the collar hook and pile tape fasteners shall be separated, and the waist and collar lobes shall be completely unfolded and laid out flat.

2. Actuate inflation assemblies.

3. The preserver shall fully inflate to design shape, without evidence of restriction, in less than 30 seconds.

4. If preserver does not properly inflate, determine cause. Ensure stem and valve are clean and free of foreign matter.

5. If correction is made, the preserver shall be functionally tested again.

6. Deflate preserver in accordance with paragraph 15-38 to remove all CO_2.

15-38. DEFLATION. To deflate a life preserver, proceed as follows:

Support Equipment Required

Quantity	Description	Reference Number
1	Pump, Rotary Vacuum (or equivalent)	NIIN 00-052-5015 (90567)
As Required	Hose, 3/8- or 1/2-inch Inside Diameter, Rubber	—

1. Attach one end of rubber hose to vacuum pump.

2. Deflate through oral inflation valves. Unlock oral inflation valve, hold in open position, and hold vacuum pump hose against end of oral inflation valve. When compartment is collapsed, release oral inflation valve. Screw lock closed.

15-39. VISUAL INSPECTION.

CAUTION

Remove all carbon dioxide cylinders prior to inflating life preserver with air.

NOTE

If suitable air source is not available, water-pumped nitrogen (FED SPEC BB-N-411) may be substituted.

15-40. Prior to visually inspecting a life preserver assembly, the life preserver shall be inflated with air to 1.0 psig.

15-41. LIFE PRESERVER CONFIGURATION. The life preserver shall be updated by comparing it to the configuration illustrations, figures 15-1 and 15-2, and Section 15-4.

15-42. GENERAL INSPECTION. Examine life preservers for the following:

NOTE

Refer to the referenced paragraph number, at end of inspection for repairs.

1. Preserver fabric for cuts, tears, punctures, deterioration and abrasion. Refer to paragraph 15-61 for repair instructions.

2. Flotation assembly seams for proper adhesion. Refer to paragraph 15-67 for instructions.

3. Valve inlet stems for security.

4. Oral inflation valve(s) for cracks, security, ease of operation, and corrosion.

5. Patches for proper adhesion and wear. Refer to paragraph 15-64 for repair instructions.

6. Any other parts for wear or other damage.

7. All hardware for security of attachment, corrosion, damage, wear and, if applicable, ease of operation.

8. Preservers for stains, dirt, and general cleanliness. Refer to paragraph 15-51 for cleaning instructions.

9. Cross threading and/or loose manifold nuts.

15-43. MARKINGS INSPECTION. To inspect and restore marking, proceed as follows:

Materials Required

Quantity	Description	Reference Number
1	Ink, Marking, Laundry, Black	SPE-92 NIIN 00-161-4229
	-or-	
As Required	Ink, Drawing, Waterproof, Yellow	A-A-59291 NIIN 00-634-6583

1. Compare markings on preserver to those listed in table 15-3.

2. Restore any faded markings.

3. Deleted.

4. Correct any markings which do not agree with the applicable table. Paint out old marking and enter new marking as close to proper position as possible.

15-44. SURVIVAL ITEMS INSPECTION. To inspect survival items, proceed as follows:

1. Inventory items by checking items against table 15-1. Replace any missing or unsatisfactory item.

NOTE

NAVAIR 13-1-6.5, Rescue and Survival Equipment contains detailed information on the inspection of survival items.

2. Inspect all items for damage, spent contents and expired service life. Replace as necessary.

3. Operate items which are not intended for one-time use. Replace as necessary.

Table 15-3. LPU-21D/P and LPU-35/P Life Preserver Markings

Marking	Location	Letter Height
P/N 1957AS102-1 (LPU-21D/P) P/N 1957AS100 (LPU-35/P) (Note 2)	Outside surface of collar delivery tube case	Optional
CASING, LIFE PRESERVER, LPU-21D/P 1957AS104-1 CONTRACT NO. [applicable number] MANUFACTURER [applicable number] DATE OF MANUFACTURE [month and year] SERIAL NO. [applicable number] Cover, Life Preserver, LPU-35/P 1957AS100 (Note 2)	Center of casing waist section (inside)	5/16 inch 3/16 inch
DYE MARKER	Pouch (right side)	1/2 inch
FLARES	Pouch (left side)	1/2 inch

Notes: 1. Replacement markings shall be stamped or stenciled using waterproof black ink.
2. Applies to LPU-21D/P Life Preserver with extension panel modification.

15-45. INFLATION ASSEMBLY INSPECTION. To inspect life preserver inflation assemblies, proceed as follows:

1. Loosen CO_2 cylinder locking screws, if present, and remove CO_2 cylinders from valve assembly.

2. Examine inflation device, actuating lever and lanyard, and locking pins for fraying, corrosion, stripped threads, and other damage.

3. If required, remove any sharp edges from valve with a fine round file.

4. Operate beaded inflation handle three or four times. Ensure that lever moves freely and ensure that piercing pin moves properly inside valve body. Inspect point of piercing pin for serviceability. If point is flat, rounded, dull, or otherwise worn or damaged, replace inflation assembly.

NOTE

Each time inflation assembly gaskets or inflation assembly is removed and replaced for any reason, a functional test shall be conducted. Refer to paragraph 15-37. Use new gaskets when replacing device.

5. If any discrepancy is noted in device that is not repairable in accordance with paragraph 15-59, remove assembly and install a new inflation device.

6. If CO_2 cylinder locking screws are installed, remove them.

15-46. BEADED INFLATION HANDLE PULL TEST. To perform the inflation lanyard pull test, proceed as follows:

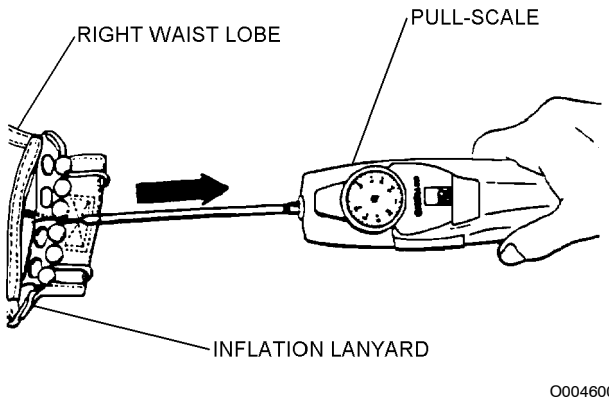
Special Equipment Required

Materials Required

Quantity	Description	Reference Number
1	Gage, Dial, Push/Pull, 0 to 50 lb	DPPH50 (CAGE 11710) or equivalent NIIN 00-473-0108

1. Ensure that CO_2 cylinder has been removed. Actuate the inflator assembly. All snap fasteners on beaded inflation handle must be fully engaged.

2. Attach gage to webbing between third and fourth bead on inflation handle.



Step 2 - Para 15-46

3. Hold inflator steady. Slowly exert a 25-pound straight pull on webbing. All snap fasteners should release at or before 25 pounds.

4. If all snap fasteners do not release at or before the 25 pound limit, inspect the male and female snap fasteners for damage. Replace the entire beaded inflation handle assembly if required and repeat steps 1 through 4.

5. If the snap fasteners release properly, leave the pull scale attached, once again apply 25 pound force to check the security of the beaded handle attachment to the inflation lanyard. Examine inflation lanyard for frays, ruptures, thin spots, split casing, and security of stitches and knots. If unsatisfactory, replace the entire beaded inflation handle. Refer to paragraph 15-73.

15-47. LEAKAGE TEST. All life preservers shall be subjected to a leakage test each Calendar/Phase Inspection. To perform a leakage test proceed in accordance with paragraph 15-49.

15-48. Test Fixture. A suggested test fixture, consisting of a three-way valve, pressure gage, and adapters for compartments being tested, is shown in Chapter 3. Fixtures must be fabricated to meet the requirements of the schematic shown in figure 15-3.

15-49. Test Procedure. To test life preservers, using test fixture shown in Chapter 3, proceed as follows:

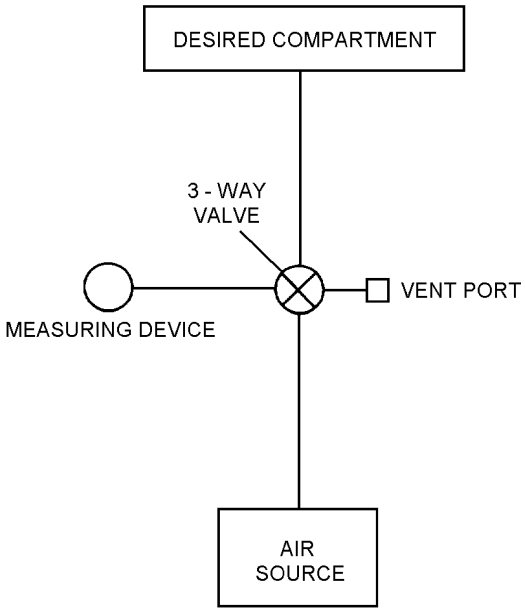


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Figure 15-3. Test Fixture Schematic

CAUTION

Ensure test area is free of foreign objects.

1. Ensure all carbon dioxide has been removed from any preserver which has been functionally tested.

CAUTION

If 3-way valve is not used, measuring device valve must be closed when air feed valve is open.

Damage may occur to oral inflation valve if air supply pressure entering the life preserver exceeds ten (10) psi during this test.

NOTE

If a suitable air source is not available, water-pumped nitrogen (BB-N-411) may be substituted.

2. Unlock oral inflation valve and insert into rubber hose. Rotate valve to air supply position and inflate chamber. Alternately position valve between measuring device, vent and air supply until proper pressure of 2.0 psig is attained in both chambers.

3. The air supply shall be securely shut off and after a minimum of 15 minutes, the pressures shall be readjusted, if necessary, to the leakage test pressure. Record time.

4. Disconnect air supply and check for leaks. Ensure all valves are closed.

5. Record temperature and barometric pressure.

6. After a minimum of 4 hours after completing step 3, record test pressure of both chambers. Test pressure shall not decrease to less than 1.6 psig for a life preserver chamber, from a maximum test pressure of 2.0 psig.

7. Record temperature and barometric pressure and correct test pressure for any changes in temperature and barometric pressure. Refer to tables 15-4 and 15-5.

EXAMPLE

UNCORRECTED TEST READING 1.70 PSI

	TEMP.	BARO.
START	75° F	29.90 IN. Hg
END	70° F	29.70 IN. Hg
DIFFERENCE	- 5° F	-0.20
CORRECTION	+0.155	-0.098

TEMP. CORRECTION	+ 0.155
+ BARO. CORRECTION	- 0.098
CORRECTION	+ 0.057

UNCORRECTED READING	1.700 PSI
+ CORRECTION	+ 0.057
CORRECTED READING	1.757 PSI

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Step 7 - Para 15-49

Table 15-4. Temperature Conversion Chart

Temperature Difference (°F)	Correction (psig)
1	0.031
2	0.062
3	0.093
4	0.124
5	0.155
6	0.186
7	0.217
8	0.248
9	0.279
10	0.310
Rise in temperature: subtract from gage reading. Fall in temperature: add to gage reading.	

8. If pressure of chamber is below 1.6 psig inflate to leakage test pressure and coat with a soap solution to locate leaks. Mark leak areas. Rinse preserver with fresh water, air dry and repair in accordance with paragraph 15-64.

9. Deflate preserver in accordance with paragraph 15-38.

10. Ensure that inflation valve lever is cocked. Install CO_2 cylinder in accordance with paragraph 15-55.

15-50. RECORDS UPDATING. Make necessary entries on appropriate form in accordance with OPNAVINST 4790.2 Series.

15-51. CLEANING AND SERVICING.

15-52. Cleaning and servicing consist of cleaning the life preserver, case, container and/or pouch, installation of the inflation valve protective covers and CO_2 cylinders and, when required, safety wiring of the inflation valve actuating lever.

15-53. CLEANING OF LIFE PRESERVER CASINGS/BLADDERS. To clean life preservers, machine washing is preferred on casings, containers, and pouches. Alternate method is by hand. Remove any survival items and other detachable items and proceed as follows:

Table 15-5. Barometric Pressure Conversion Chart

Press. Diff. (inHG)	Corr. (psi)	Press. Diff. (inHG)	Corr. (psi)	Press. Diff. (inHG)	Corr. (psi)	Press. Diff. (inHG)	Corr. (psi)	Press. Diff. (inHG)	Corr. (psi)
0.01	0.005	0.16	0.078	0.31	0.152	0.46	0.225	0.61	0.299
0.02	0.010	0.17	0.083	0.32	0.157	0.47	0.230	0.62	0.304
0.03	0.015	0.18	0.088	0.33	0.162	0.48	0.235	0.63	0.309
0.04	0.020	0.19	0.093	0.34	0.167	0.49	0.240	0.64	0.314
0.05	0.025	0.20	0.098	0.35	0.172	0.50	0.245	0.65	0.319
0.06	0.030	0.21	0.103	0.36	0.176	0.51	0.250	0.66	0.323
0.07	0.035	0.22	0.108	0.37	0.181	0.52	0.254	0.67	0.328
0.08	0.040	0.23	0.113	0.38	0.186	0.53	0.260	0.68	0.333
0.09	0.045	0.24	0.118	0.39	0.191	0.54	0.265	0.69	0.338
0.10	0.049	0.25	0.123	0.40	0.196	0.55	0.270	0.70	0.343
0.11	0.054	0.26	0.127	0.41	0.201	0.56	0.275	0.71	0.348
0.12	0.060	0.27	0.132	0.42	0.206	0.57	0.279	0.72	0.353
0.13	0.064	0.28	0.137	0.43	0.211	0.58	0.284	0.73	0.358
0.14	0.069	0.29	0.142	0.44	0.216	0.59	0.289	0.74	0.363
0.15	0.073	0.30	0.147	0.45	0.221	0.60	0.294	0.75	0.368
Rise in pressure: add to gage reading. Fall in pressure: subtract from gage reading.									

Materials Required

Quantity	Description	Reference Number
As Required	Detergent, General Purpose	MIL-D-16791 NIIN 00-282-9699
As Required	Cloth, Lint-Free, Type II	MIL-C-85043 NIIN 00-044-9281
As Required	Talc, Technical	MIL-T-50036A NIIN 01-080-9589

CAUTION

Solvents are not to be used in cleaning life preservers.

1. Prepare solution of detergent (MIL-D-16791) consisting of 1/4 to 1/2 ounce of detergent per gallon of water.

2. Apply cleaning solution to soiled area with a spray or sponge.

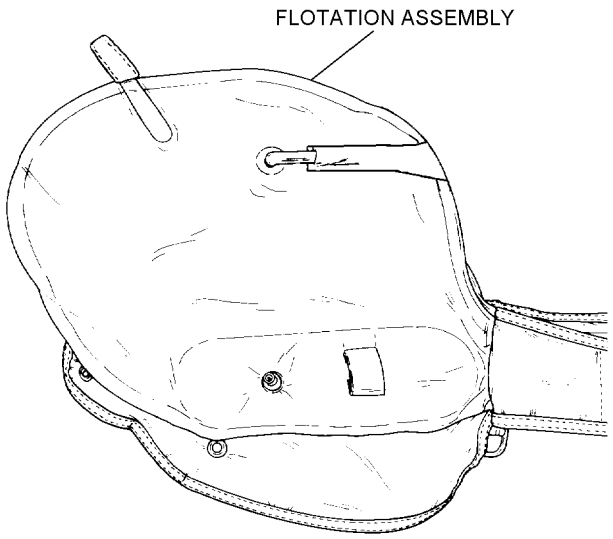
3. Allow solution to remain on surface for several minutes, then agitate with a soft brush or rag.

4. Rinse surface thoroughly with water; wipe with a cloth or sponge. Repeat this application until surface is free from all solution.

5. Dry casing before use and dry bladder with a lint-free cloth (MIL-C-85043). Apply a light coating of talc (MIL-T-50036A).

15-54. INSTALLATION OF INFLATION VALVE PROTECTIVE COVERS. To install inflation valve protective covers, proceed as follows:

1. Open life preserver flotation assembly, then position on a flat surface.



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Step 1 - Para 15-54

2. Place inflation valve protective cover upon the life preserver. Ensure that inlet manifold stem hole and CO_2 cylinder holding loop hole are aligned according to figure 15-4.

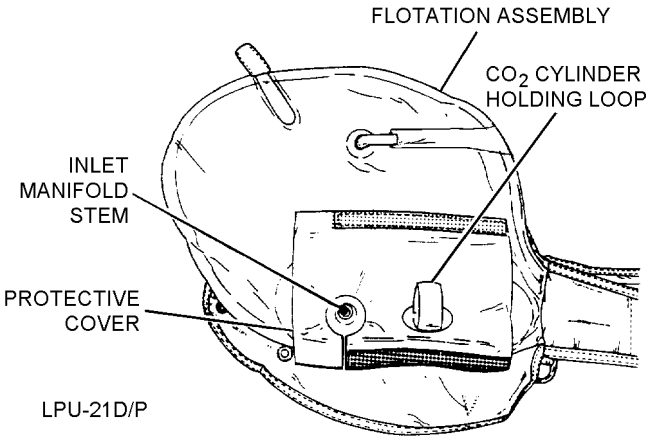

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Figure 15-4. Installation of Inflation Valve Protective Cover

15-55. INSTALLATION OF CO_2 CYLINDERS. To install CO_2 cylinders, proceed as follows:

Support Equipment Required

Quantity	Description	Reference Number
1	Scale (Gram)	A-A-52021-1 NIIN 00-514-4117 or equivalent
1	Die, Cylinder Thread Chaser	1842-008-01 (CAGE 03688) NIIN 00-069-4040

Materials Required

Quantity	Description	Reference Number
1	Valve Stem and Seat Seal Kit (Note 1)	105AS100-5 (CAGE 30003) NIIN 00-498-6964
As Required	Cylinder, CO_2 Type III, 35-Gram	MIL-C-25369C NIIN 01-077-8773

Notes: 1. Seat Seal is obtained from Valve Stem and Seat Seal Kit, P/N 105AS100-5, NIIN 00-498-6964, which contains two top, two bottom, and two seat seal gaskets.

NOTE

Weight of charged cylinder will vary according to manufacturer.

1. Weigh a charged cylinder and compare the minimum stamped weight with the scale weight. Discard and replace cylinder if scale weight is 2 grams less than minimum stamped weight.

2. Each inflation assembly consists of an inflator (MIL-I-25370, Type II, NIIN 00-561-0094), and a CO_2 cylinder (MIL-C-25369C, Type III, 34 to 37 grams, NIIN 01-077-8773).

3. Remove and discard inflator setscrew(s) if installed. Ensure that inflator lever is in a cocked position.

4. To assure a firm cylinder seat, conduct a cylinder thread count. Threaded portion of cylinder neck shall contain a minimum of seven full threads to assure a firm cylinder seat within valve body. Any cylinder found with less than seven full threads shall be discarded. See figure 15-5.

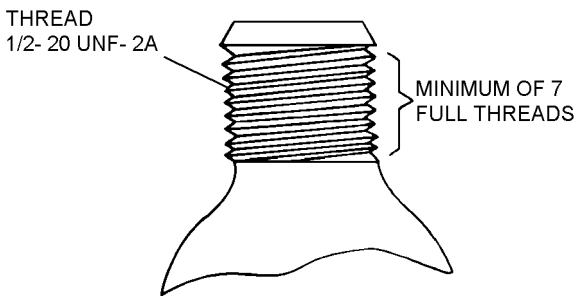

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Figure 15-5. Cylinder Thread Count

CAUTION

Steel threads on CO_2 cylinder can cause damage to aluminum threads on inflator if cylinder is not carefully threaded. If binding occurs during installation of cylinder, use thread chaser dye on cylinder thread to cut free excessive plating. Reinstall cylinder. If binding still occurs, replace cylinder.

5. After performing functional test, insert a new seat seal gasket. At intermediate inspection intervals, inspect condition of gasket and replace if necessary.

6. Install CO_2 cylinder into inflator body as far as hand twisting will permit.

NOTE

When replacing CO_2 cylinder to inflator, ensure that CO_2 cylinder passes through the holding patch loop.

Do not install setscrews in LPU-21D/P life preservers.

7. Close inflation valve protective covers; then secure with hook and pile tape provided. See figure 15-4.

15-56. REPAIR/REPLACEMENT.

15-57. This section contains instructions for the repair or modification of various components or subassemblies of life preservers to ensure that appropriate items of equipment remain in Ready For Issue (RFI) status. Reference numbers for parts which are defective, corroded or worn and require replacement are included in the applicable paragraph of this section. Other replacement parts, such as carrying cases and personal survival equipment, are listed in the applicable table of each chapter. Procedures are applicable to the type life preserver described in parentheses following the title of the repair or modification, or before a step. Common repairs and fabrication instructions to maintain serviceability are listed in table 15-6.

Table 15-6. LPU-21D/P Common Repairs and Fabrications

Description of Repair or Fabrication	Paragraph Number
Determination of Repairability	15-59
Casing Repair Procedures	15-61
Casing Grommet Replacement Procedures	15-62
Cementing Life Preservers	15-63
Patching Life Preservers	15-64
Replacement of Oral Inflation Valve	15-66
Recementing of Bladder Fin Seams	15-67
Fabrication of Slip-On Pockets For Life Preserver Hardware	15-68
Replacement of Flare and Dye Marker Pouch Snaphooks	15-69
Flare Pouch Repair	15-70
Disassembly of the Life Preserver	15-71
Reassembly of Life Preserver	15-72
Replacement of Beaded Inflation Handle Assembly	15-73
Repair of Corroded CO_2 Inflation Valve	15-74
Replacement of Top and Bottom Gaskets	15-75
Replacement of Check Valve Assembly	15-76
Fabrication of Protective Cover Assembly	15-77
Addition of Collar Lobe Webbing Loops	15-78
Fabrication and Installation of Waist lobe Attachment Patch	15-79
Fabrication and Installation of Locking Pin Cover (No. 3 Spur Grommet)	15-82
Fabrication of 6-inch Extension Panel for Casing Assembly	15-82A
Replacement of Collar Lobe Uni-Directional Snap Fasteners and Webbing	15-83
Replacement of Flotation Bladder Collar Lobe Uni-Directional Snap Fastener Stud	15-84

15-58. Replacement of easily removed assembly components such as CO_2 inflation valves and survival items are authorized in addition to repair and replacement procedures documented in this section. The life preserver shall be subjected to a functional and leakage test each time CO_2 inflation valves are removed and replaced for any reason, and each time inflation valve gaskets are replaced.

15-59. DETERMINATION OF REPAIRABILITY. Patching of holes, cuts, tears or punctures 1-inch square or less are the only repairs authorized in a life preserver bladder.

15-60. Life preserver shall be considered beyond repair for any of the following reasons:

1. Porous fabric areas on flotation bladder.

2. Split or open bladder seams.

3. Leakage test failure resulting from other than repairable cut, tear or puncture.

4. Holes, cuts, tears or punctures within 1-inch of flotation bladder seams.

5. Deterioration of the rubberized fabric caused by oil, grease, or any other foreign substance.

6. Deterioration of the rubberized fabric caused by a heavily mildewed condition.

15-61. CASING REPAIR PROCEDURES. To repair casings, proceed as follows:

Materials Required

Quantity	Description	Reference Number
As Required	Thread, Nylon, High Temperature Resistant, Sage Green	MIL-T-83193 NIIN 00-405-2252
	-or-	
As Required	Thread, Nylon, Type II, Size E, Sage Green	V-T-295 NIIN 00-204-3884
As Required	Cloth, Aramid, Non-melting, Type 456, Class I, Sage Green	MIL-C-83429 NIIN 01-147-2068

Materials Required (Cont)

Quantity	Description	Reference Number
As Required	Tape, Hook, Sage Green, Type II	MIL-F-21840 NIIN 00-405-2266
As Required	Tape, Pile, Sage Green, Type II	MIL-F-21840 NIIN 00-405-2263

1. Minor holes, rips, tears, or abrasions in casing assembly may be repaired if they do not exceed 2 inches.

2. Repair or replace loose or damaged hook and pile tape as required.

3. Remove bladder in areas being repaired.

4. For all repairs plus loose or broken stitching use 6 to 8 stitches per inch and back stitch one half inch.

5. Casing assembly worn beyond economical repair shall be discarded.

15-62. CASING GROMMET REPLACEMENT PROCEDURES. To replace casing grommet, proceed as follows:

Support Equipment Required

Quantity	Description	Reference Number
1	Punch, Cutting, 3/16″	3GGG-P-833 NIIN 00-180-0941
1	Pencil, Solder	W-S-570 NIIN 00-204-3855

Materials Required

Quantity	Description	Reference Number
1	Tape, Nylon, Sage Green, 1″ Wide	MIL-T-5038 NIIN 00-753-6144
	-or-	
1 1/2″ X 1 1/2″	Cloth, Aramid, Sage Green, Type 456, Class I	MIL-C-83429 NIIN 01-147-2064
2	Grommet, Brass, Size 00	MS20230B20 NIIN 00-291-0302

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1. Remove bladder in areas being repaired.

2. Remove loose grommet.

3. Reinforce worn grommet hole in casing by using either nylon tape or aramid cloth.

a. Prepare reinforcing material.

(1) Cut and sear edges of a 1-inch piece of nylon tape.

or

(2) Cut a 1 1/2 x 1 1/2-inch piece of aramid cloth and fold under 1/4 inch on all edges.

b. Sew reinforcing material to outside of casing, centered where possible over original grommet location. Use a cross boxstitch with 6 to 8 stitches per inch, 1/8 inch from edge.

4. Install new grommet.

a. Locate original grommet hole. Cut hole in reinforcing material using 3/16-inch cutting punch.

b. (For nylon tape only.) Carefully sear hole to prevent fraying using solder pencil.

c. Install grommet and washer using 00 grommet setter and base.

15-63. CEMENTING LIFE PRESERVERS. All cementing of life preservers shall be performed as follows:

Support Equipment Required

Quantity	Description	Reference Number
1	Roller, Wooden	GGG-R-00620 NIIN 00-243-9401
1	Brush, Disposable	NIIN 00-514-2417

Materials Required

Quantity	Description	Reference Number
As Required	Toluene	TT-T-548 NIIN 00-281-2002
	-or-	
As Required	Methyl Ethyl Ketone (MEK)	TT-M-261 NIIN 00-281-2762
As Required	Adhesive, Polyurethane (Note 1)	MIL-A-47315 P/N UR-1092 NIIN 01-375-7855
As Required	Talc, Technical	MIL-T-50036A NIIN 01-089-9589

Notes: 1. Polyurethane adhesive (UR-1092) may be open purchased from the following source (minimum order $150.00):
Clifton Adhesives Inc.
Burgess Place
Wayne, NJ 07473
201-694-0845

WARNING

Do not use toluene or MEK near open flame, heat or electrical sparks. Avoid prolonged contact with skin or breathing of fumes. Use only in a well ventilated area.

CAUTION

Use only polyurethane adhesive on heat sealed polyurethane-coated cloth of LPU-21D/P life preserver assemblies.

NOTE

Toluene shall be the primary solvent used in the fabrication or repair of this assembly. MEK may be used if toluene is not available. Always use sparingly and wipe up excess solvents; do not allow to dry by evaporation.

Toluene or MEK must be applied vigorously to life preserver material over three years old in order to reactivate the material prior to cementing. Pigment from the material coloring staining a cloth rubbed over the treated surface will indicate the material has been reactivated. Cement shall be applied immediately after the surface has dried.

1. Clean both surfaces to be cemented with four applications of toluene or MEK. Apply toluene or MEK with back-and-forth strokes on the first and third applications, and one-way strokes on the second and fourth applications. Allow area to dry between applications.

CAUTION

The effective active period of adhesive mixture composed of polyurethane and an accelerator is eight (8) hours. Do not use mixture if older than eight hours.

2. Prepare only enough mixture for 8 hours. Dispose of any remaining mixture.

3. Using a disposable brush, apply cement to completely cover surfaces to be cemented. Use long, one direction strokes and complete each surface before cement becomes tacky as the brush may pull tacky cement from the surface. Allow to dry for 10 minutes.

4. Apply a second coat of cement as in step 3. Use brush strokes perpendicular to the original direction.

5. When second coat of cement has become tacky, place pieces together. If cemented area has a cut or tear, butt edges of damage before applying patch. Roll out bubbles with a wooden roller.

6. Allow cement to cure a minimum of 48 hours.

7. Dust area with talc (MIL-T-50036A).

15-64. PATCHING LIFE PRESERVERS. Patching of life preserver shall be performed as follows:

NOTE

Life preserver is not repairable if it has holes, cuts, tears, or punctures over one-inch square.

Materials Required

Quantity	Description	Reference Number
As Required	Cloth, Nylon, Polyurethane Coated, Type I	MIL-C-83489 NIIN 01-335-3129

CAUTION

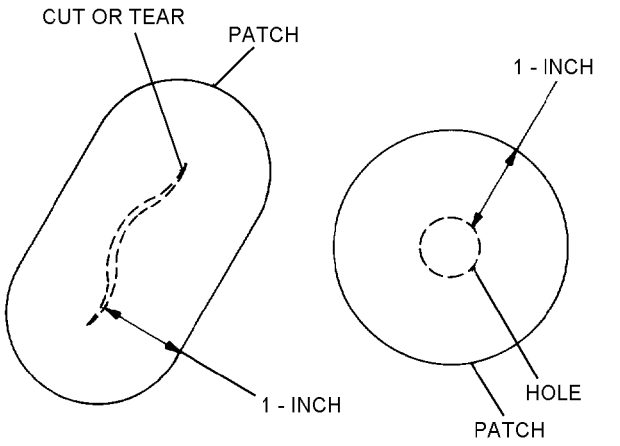
Only polyurethane adhesives and polyurethane-coated cloth patches shall be used on polyurethane-coated LPU-21D/P life preserver assemblies.

NOTE

Select patch color as near as possible to color of life preserver being repaired.

Use of cloth from BCM raft/life preservers is authorized for repair, with two exceptions. Inflatables condemned for contamination (oil, grease, etc.) and ALSS equipment involved in mishaps shall not be used for repairs.

1. Cut a rounded patch 1 inch larger than damage on all sides.



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Step 1 - Para 15-64

2. Center patch over damage and trace an outline of patch on fabric.

3. Cement patch to damaged area in accordance with paragraph 15-63.

4. Dust area with talc (MIL-T-50036A).

5. Perform a leakage test.

15-65. INSPECTION RECORD PATCH.

NOTE

The 28th In-Service Management Panel meeting for Aviation Life Support Systems rescinded the requirement for the packer to sign the Inspection Record Patch on life preservers. The requirement for all other documentation remains unchanged. The reason for this change is that most history patches are unreadable and the packer's and inspector's names are documented on Aviation Crew Systems Records.

15-66. REPLACEMENT OF ORAL INFLATION VALVE. To replace the oral inflation valve, proceed as follows:

NOTE

Replacement oral inflation valves can only be obtained through salvage of BCM'ed or surveyed inflatable survival equipment.

Materials Required

Quantity	Description	Reference Number
1	Valve, Oral Inflation	—
As Required	Cement, Polychloroprene	MIL-A-5540 NIIN 00-142-9913
As Required	Brush, Disposable	NIIN 00-514-2417
As Required	Toluene	TT-T-548 NIIN 00-281-2002
	-or-	
As Required	Methyl Ethyl Ketone (MEK)	TT-M-261 NIIN 00-281-2762

CAUTION

Only toluene or MEK shall be used to clean oral inflation valve and tube. Only Polychloroprene cement (MIL-A-5540, NIIN 00-142-9913) shall be used to cement oral inflation valve into oral inflation tube.

1. Carefully cut through metal clamp securing oral inflation valve to oral inflation tube and remove metal band and oral inflation valve.

2. If the tip of the oral inflation tube was damaged during removal of valve, trim off damaged section.

3. Clean both surfaces to be cemented with toluene or MEK. Allow areas to dry.

4. Using a small disposable brush, carefully apply a small amount of Polychloroprene cement to the surfaces of the tube and the valve which are to be cemented together.

5. Immediately place oral inflation valve into oral inflation tube. Oral inflation valve should be inserted up to valve shoulder. Inspect for proper application/cement.

6. Tightly wrap the cemented portion of the oral inflation tube with cord or wire and allow to cure for 48 hours before removing wrap.

7. Perform leakage test in accordance with paragraph 15-47.

15-67. RECEMENTING OF BLADDER FIN SEAMS. Recementing of seams is not authorized.

CAUTION

Recementing of fin seams is not authorized for heat sealed LPU-21D/P Life Preservers.

1. Dispose of LPU-21D/P flotation assembly after usable parts have been salvaged.

Figure 15-6 Deleted.

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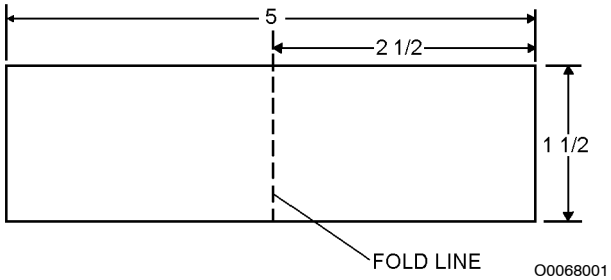
15-68. FABRICATION OF SLIP-ON POCKETS FOR LIFE PRESERVER HARDWARE. To fabricate slip-on pockets life preserver hardware, proceed as follows:

Materials Required

Quantity	Description	Reference Number
As Required	Cloth, Nylon, Polyurethane-coated, Type I	MIL-C-83489 NIIN 01-335-3129
As Required	Thread, Nylon Size E	V-T-295 NIIN 00-204-3884

1. Cut two pieces of coated nylon cloth as shown.



Step 1 - Para 15-68

2. Fold piece of cloth in half along fold line.

3. Sew two sides adjacent to fold forming a pocket. Use stitch type 301 stitching 8 to 10 stitches per inch.

4. Repeat steps 2 and 3 for other piece of cloth.

5. When packing life preserver, slip pockets over applicable pieces of hardware.

15-69. REPLACEMENT OF FLARE AND DYE MARKER POUCH SNAPHOOKS. To replace a broken snaphook, proceed as follows:

Materials Required

Quantity	Description	Reference Number
12 inches	Cord, Nylon, Type I	MIL-C-5040 NIIN 00-240-2154

1. Cut through ring portion of snaphook.

2. Remove snaphook and discard.

3. Pass end of cord through webbing loops on pouch and preserver ring.

4. Secure cord ends with binder knot, cut excess cord, and sear ends.

15-70. FLARE POUCH REPAIR. To repair flare pouch which will not close or is extremely difficult to close with flares installed, proceed as follows:

Materials Required

Quantity	Description	Reference Number
As Required	Thread, Nylon, Size E	V-T-295 NIIN 00-204-3884
2	Socket, Snap Fastener	MS27983-2 NIIN 00-945-2577
2	Cap, Snap Fastener	MS27983-1 NIIN 00-891-9073
3 1/2 inches	Webbing, Type VIII	MIL-W-4008

1. Remove both sets of sockets, caps, and pull tabs from pouch closure flap. Save pull tabs.

2. Position MIL-W-4008 Type VIII webbing on outside surface of pouch flap. Cut and sear webbing ends to match contour of flap end. Boxstitch webbing to flap using size E nylon thread (V-T-295). See figure 15-7.

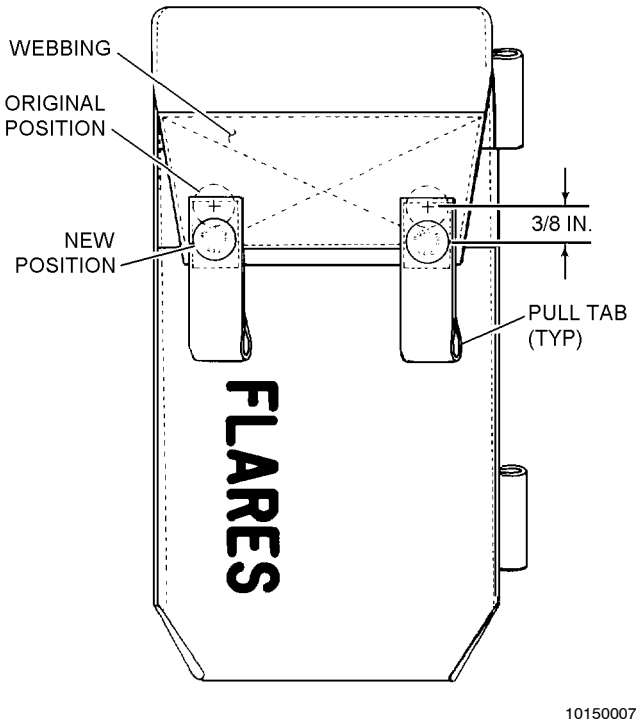


Figure 15-7. Flare Pouch Repair

3. Reposition both sets of sockets, caps, and pull tabs 3/8 inch closer to flap end. Use original pull tabs.

15-71. DISASSEMBLY OF THE LIFE PRESERVER. To disassemble the life preserver for bladder or case repairs, proceed as follows:

NOTE

Life preserver shall be disassembled only to the extent necessary to perform required maintenance or inspection.

The uni-directional snap fastener socket is installed with the dot on its button oriented to the side of the fastener on which lift must be applied to disengage socket from the snap fastener stud.

1. Disengage uni-directional snap fasteners securing waist lobes to casing by applying lift on the dot-side snap fastener buttons.

2. Disengage collar lobe from casing by inserting finger under casing between the two uni-directional snap fastener buttons and apply lift.

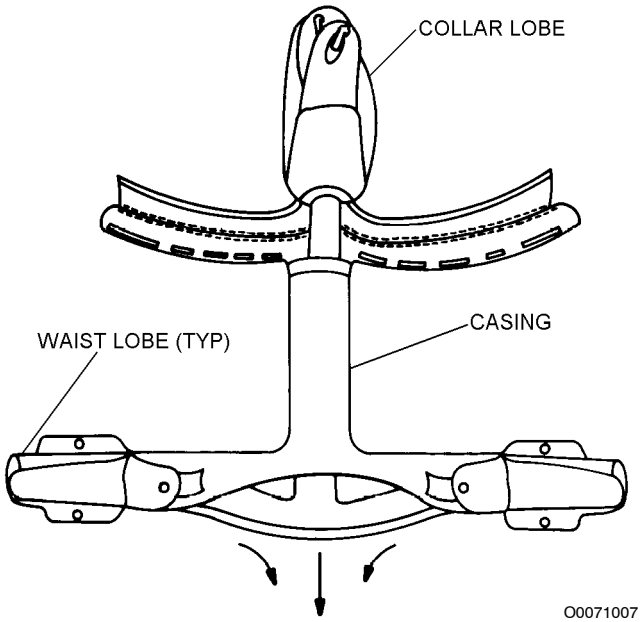
3. Open casing and remove both inflation assemblies.

4. Reattach cap nuts to valve stems.

5. Release all hook and pile tape fasteners.

6. Fold collar lobe and waist lobes to width of casing.

7. Hold casing at collar and pull flotation assembly down and out of casing, one lobe at a time.



Step 7 - Para 15-71

15-72. REASSEMBLY OF THE LIFE PRESERVER. To reassemble the life preserver proceed as follows:

Materials Required

Quantity	Description	Reference Number
1	Valve Stem and Seat Seal Kit (Note 1)	105AS100-5 (CAGE 30003) NIIN 00-498-6964

Notes: 1. Valve Stem and Seat Seal Kit, P/N 105AS100-5, NIIN 00-498-6964, contains two top, two bottom, and two seat seal gaskets.

NOTE

The quantity of materials listed is sufficient for reassembly of one life preserver.

CAUTION

Ensure flotation assembly is not twisted in casing channels.

1. Roll collar lobes of flotation assembly together to form compact rod-like configuration and insert into base of back channel of casing. While holding lobes in roll configuration, work them through casing back channel. Next, insert waist lobes through casing waist channels.

2. When flotation assembly is in casing assembly, ensure that it is in proper configuration and is not twisted inside casing.

3. Align uni-directional snap fastener studs on each collar lobe with snap fastener sockets of casing assembly and secure snap fasteners.

NOTE

For ease of operation, insert one side of snap fastener stud into the socket on the side opposite the dot on the button, and press to engage.

4. Align uni-directional snap fastener sockets of flotation assembly waist lobe attachment patch with snap fastener studs of casing assembly and secure waist lobes to casing assembly.

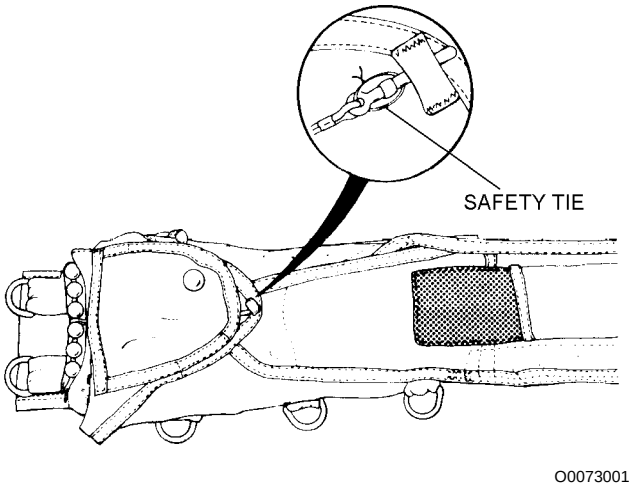
5. Remove old inflation gaskets and replace with new gaskets. Reinstall inflation assemblies and protective covers. Pack life preserver in accordance with paragraph 15-85.

15-73. REPLACEMENT OF BEADED INFLATION HANDLE ASSEMBLY. To replace the beaded inflation handle, proceed as follows:

Materials Required

Quantity	Description	Reference Number
As Required	Handle, Beaded, Inflation	975AS121-11 NIIN 01-120-4752 (CAGE 30003)
As Required	Thread, Nylon, Size E	V-T-295 NIIN 00-204-3884

1. Open snap fastener on locking pin cover; then cut and remove safety tie securing eye of locking pin to retaining loop. Carefully remove locking pin from pin keeper and retaining loop.



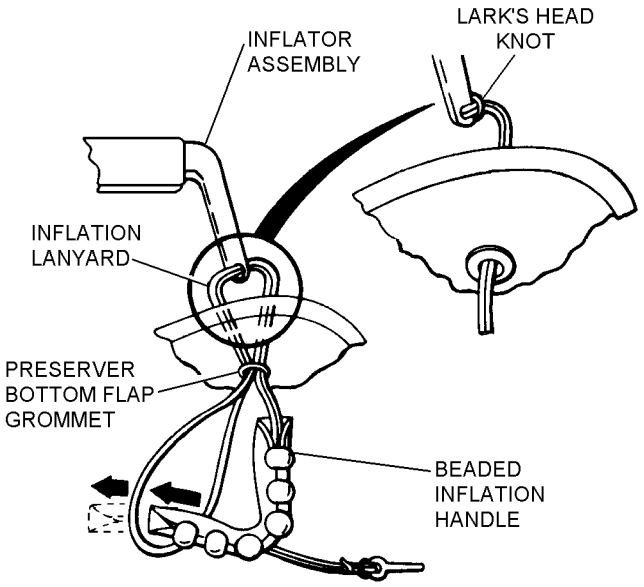
Step 1 - Para 15-73

2. Open flaps and unfold life preserver assembly.

3. Remove CO_2 cylinder from CO_2 inflator assembly. Retain CO_2 cylinder for reinstallation.

4. Remove inflation lanyard from inflator assembly; then unsnap beaded inflation handle from life preserver casing.

5. Secure new beaded handle inflation lanyard to actuating lever by passing lanyard through grommet in bottom casing flap and through hole in end of actuating lever. Pass lanyard back through grommet in bottom casing flap and form lark's head knot.



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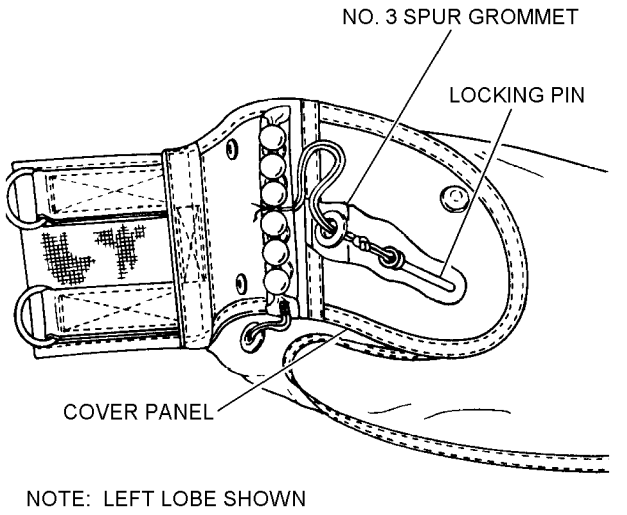
Step 5 - Para 15-73

6. Fasten beaded inflation handle to casing with snap fasteners provided; then safety-tie beaded inflation handle with one turn of size E nylon thread, single. Draw thread sufficiently to permit 1/2-inch æ 1/8-inch space between the middle beads and webbing on the preserver. Tie ends of both safety ties with a surgeon's knot followed by a square knot.

NOTE

Ensure that overhand knot on locking pin lanyard is within 3/4 inch from eye of pin.

7. Route locking pin under outboard flap cover panel and through No. 3 spur grommet.



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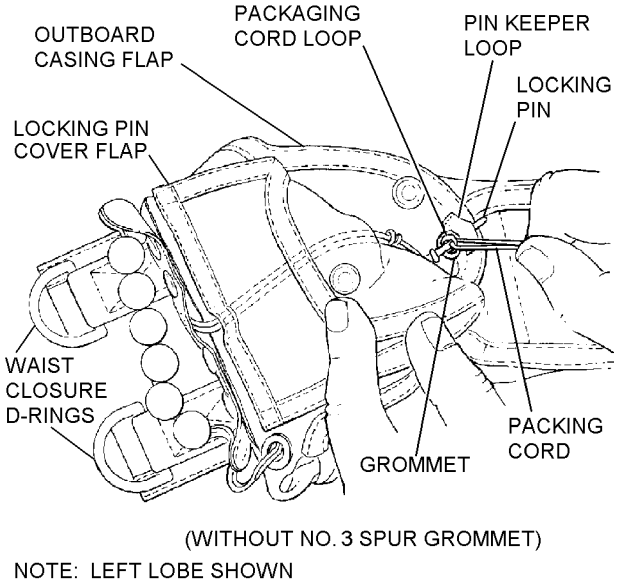
Step 7 - Para 15-73

NOTE

On some late issue LPU-21D/P life preservers, the No. 3 spur grommet has been deleted.

8. Route the locking pin under the locking pin cover flap through the opening in the stitching at the base of the flap, through the retaining loop/packaging cord loop, and under the pin keeper loop.



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Step 8 - Para 15-73

9. Perform beaded inflation handle pull test. Refer to paragraph 15-46.

10. Recock CO_2 inflator and install CO_2 cylinder.

NOTE

Ensure that all hook and pile tapes are securely mated.

11. Pack life preserver according to procedures outlined in paragraph 15-85.

12. Make necessary entries on appropriate form in accordance with OPNAVINST 4790.2 Series.

15-74. REPAIR OF CORRODED CO_2 INFLATION VALVE MIL-I-25370, TYPE II (NON-EJECTION A/C). To repair CO_2 inflation valve, proceed as follows:

Materials Required

Quantity	Description	Reference Number
As Required	Lubricant, Silicone	DC7 (CAGE 71984) NIIN 00-995-0712
1	Valve Stem and Seat Seal Kit (Note 1)	105AS100-5 (CAGE 30003) NIIN 00-498-6964
As Required	Cloth, Emery No. 240	—
1	Valve, Inflation, Type II	MIL-I-25370 NIIN 00-561-0094
As required	Abrasive Mat	MIL-A-9962 NIIN 00-967-5093
As Required	Corrosion Preventative Compound (Amiguard) Type I	MIL-C-85054 NIIN 01-041-1596

Notes: 1. Valve Stem and Seat Seal Kit, P/N 105AS100-5, NIIN 00-498-6964, contains two top, two bottom, and two seat seal gaskets.

1. Remove CO_2 cylinder from valve.

2. Remove inflation valve from preserver. Discard two gaskets on valve stem. Remove CO_2 cylinder from valve.

3. Remove grooved taper pin (retaining lever) from inflation valve, using awl and mallet. See figure 15-8.

4. Remove lever, spring, and piercing pin. If spring is broken or corroded, replace entire valve.

5. If piercing pin or actuating lever is corroded, remove corrosion with abrasive mat. If abrasive mat is ineffective, use 240 grit emery cloth. Do not damage O-ring on piercing pin. Wipe off any dirt or moisture from actuating lever and apply a thin coat of MIL-C-85054 and allow to dry.

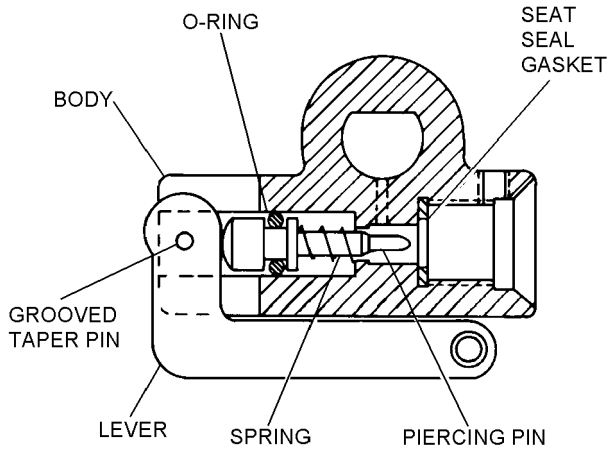


Figure 15-8. CO_2 Inflation Assembly

6. Clean residue from actuating lever on piercing pin. Lightly coat base of piercing pin with silicone lubricant.

7. Reassemble inflation valve and operate actuating lever three or four times. Ensure that lever and piercing pin move freely.

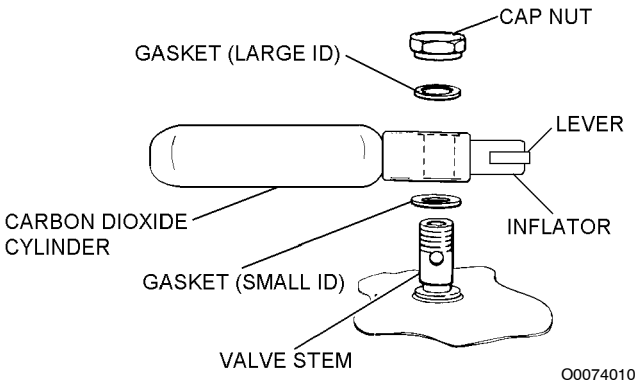
8. If piercing pin and lever do not move freely, obtain replacement valve.

9. Reinstall inflation valve on life preserver using new gaskets from kit. Reinstall new seat seal gasket and CO_2 cylinder.

CAUTION

Valve stem may rotate if cap nut is over torqued.

10. Install cap nut onto valve stem and torque to a value of 8 ±1 in-lb.



Step 10 - Para 15-74

15-75. REPLACEMENT OF TOP AND BOTTOM GASKETS. To replace the top and bottom gaskets on an inflator, proceed as follows:

Support Equipment Required

Quantity	Description	Reference Number
1	Wrench, 9/16 inch	—

Materials Required

Quantity	Description	Reference Number
1	Valve Stem and Seat Seal Kit (Note 1)	105AS100-5 (CAGE 30003) NIIN 00-498-6964

Notes: 1. Valve Stem and Seat Seal Kit, P/N 105AS100-5, NIIN 00-498-6964, contains two top, two bottom, and two seat seal gaskets.

1. Remove cap nut and top gasket from inflator.

WARNING

Ensure that gaskets are properly positioned. The top gasket has a larger internal diameter than the bottom gasket.

2. Remove inflator and replace bottom gasket.

3. Carefully place inflator onto valve stem.

4. Install top gasket onto valve stem.

CAUTION

Valve stem may rotate if cap nut is over torqued.

5. Tighten cap nut onto valve stem and torque to a value of 8 ±1 in-lb.

6. Perform functional and leakage tests on life preserver cell that was repaired. Refer to paragraphs 15-37 and 15-47.

15-76. REPLACEMENT OF CHECK VALVE ASSEMBLY. To replace a defective check valve assembly, proceed as follows:

Materials Required

Quantity	Description	Reference Number
1	Valve, Pneumatic Inflator (Check Valve Assembly) (Note 1)	Schrader-Bridgeport P/N 8457500047

Notes: 1. Schrader-Bridgeport P/N 8457500047 must be open purchased from:
Schrader-Bridgeport Intl
205 Frazier Rd
P.O. Box 668
Altivista, VA 24517
Phone (804) 369-8875

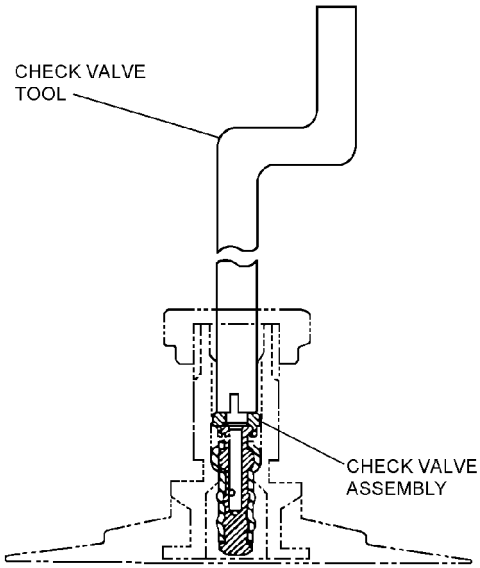
Support Equipment Required

Quantity	Description	Reference Number
1	Tool, Valve Core	8769A or equivalent (CAGE 27783) NIIN 01-354-5423
1	Wrench, Torque	—

1. If not available, fabricate a valve core tool as shown in Chapter 3.

2. Remove inflator cap nut.

3. Insert valve core tool and unscrew check valve from valve stem.



Step 3 - Para 15-76

4. Insert new check valve in valve stem and tighten with valve core tool hand tight.

CAUTION

Valve stem may rotate if cap nut is over torqued.

5. Replace cap nut and torque to a value of 8 ±1 in-lb.

6. Perform a functional and leakage test on life preserver cell that was repaired. Refer to paragraphs 15-37 and 15-47.

15-77. FABRICATION OF PROTECTIVE COVER ASSEMBLY. To fabricate a protective cover, proceed as follows:

Materials Required

Quantity	Description	Reference Number
17 x 6 inches	Cloth, Nylon, Polyurethane-coated, Type I	MIL-C-83489 NIIN 01-335-3129
12 x 5/8 inches	Fastener, Tape, Hook, Type II	MIL-F-21840
12 x 5/8 inches	Fastener, Tape, Pile, Type II	MIL-F-21840
As Required	Thread, Nylon, Type I or II, Size E	V-T-295 NIIN 00-204-3884

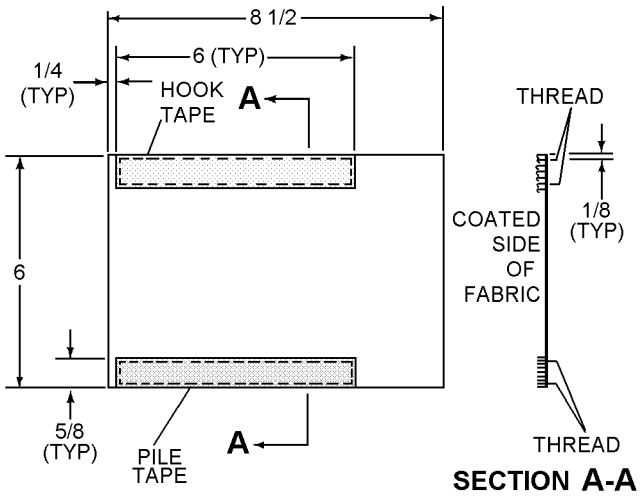
NOTE

Procedural step 1 is for a right protective cover and step 2 is for a left protective cover.

1. To fabricate a right protective cover, proceed as follows:

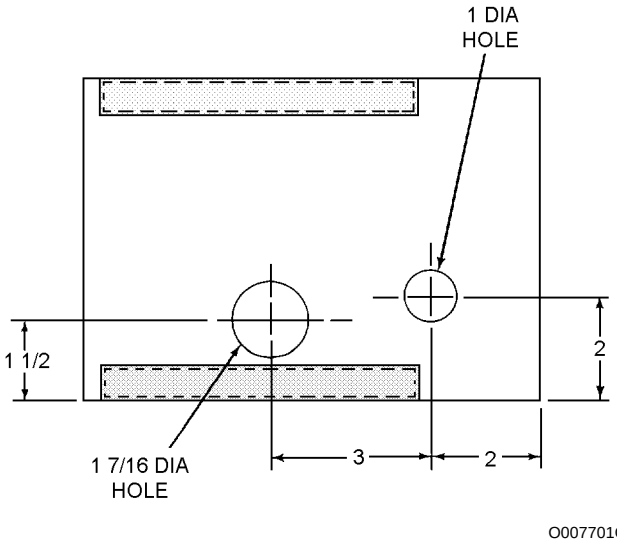
a. Cut an 8 1/2-inch length of cloth.

b. Cut a 6-inch length of hook and pile tape and sew to the coated side of the cloth. Use stitch type 301 stitching 8 to 10 stitches per inch.



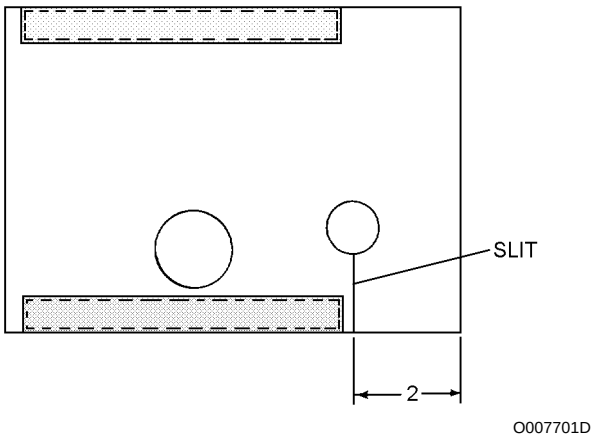
Step 1b - Para 15-77

c. Position coated, coated side up, over cutting board and punch a 1 7/16-inch diameter hole and a 1-inch diameter hole.



Step 1c - Para 15-77

d. Cut slit into cloth up to the 1-inch diameter hole.

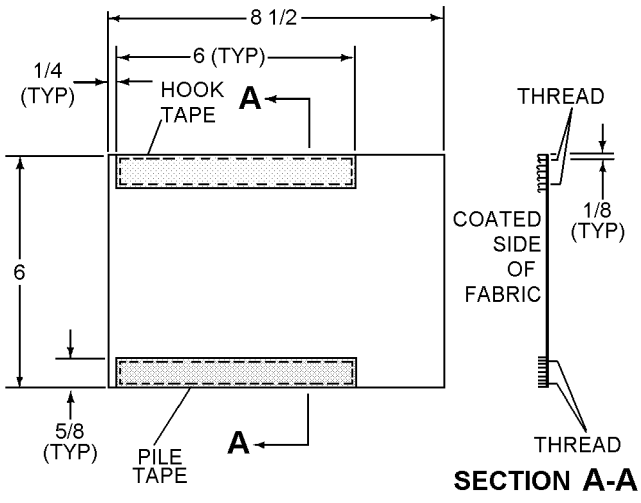


Step 1d - Para 15-77

2. To fabricate a left protective cover, proceed as follows:

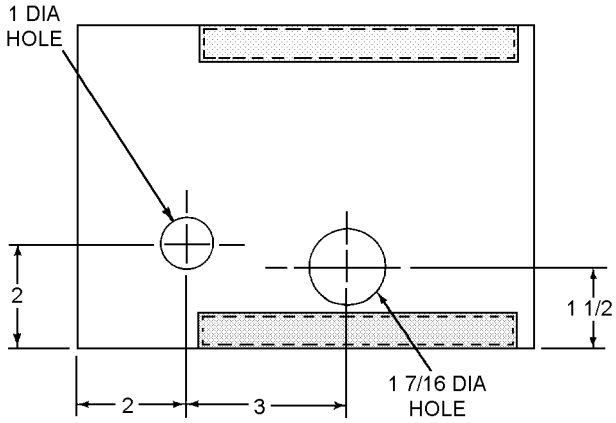
a. Cut an 8 1/2-inch length of cloth.

b. Cut a 6-inch length of hook and pile tape and sew to the coated side of the cloth.



Step 2b - Para 15-77

c. Position cloth, coated side up, over cutting board and punch a 1 7/16-inch diameter hole and a 1-inch diameter hole.



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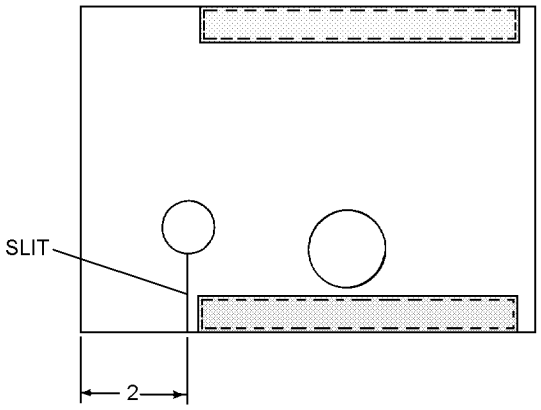
Step 2c - Para 15-77

d. Cut slit into cloth up to the 1-inch diameter hole.



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Step 2d - Para 15-77

3. Install protective cover before installing inflator and CO_2 cylinders.

15-78. FABRICATION OF COLLAR LOBE WEBBING LOOPS. To fabricate collar lobe webbing loops, proceed as follows:

Materials Required

Quantity	Description	Reference Number
18-inch Length	Webbing, Nylon, Type IV, 1-inch Width	MIL-T-5038 NIIN 00-261-8579 (CAGE 81349)
2	Post, Snap Fastener	MS27981-5B NIIN 00-250-6858 (CAGE 96906)
2	Stud, Snap Fastener	MS27981-4B NIIN 00-901-9660 (CAGE 96906)
2	Socket, Snap Fastener	M527981-3B, NIIN 00-276-4966 (CAGE 96906)
2	Cap, Snap Fastener	M527981-1B NIIN 00-276-4954 (CAGE 96906)
As Required	Thread, Nylon Type II, Size E	V-T-295 NIIN 00-204-3884

NOTE

All stitching shall be 10 to 12 stitches per inch, size E nylon thread.

1. Cut two 9-inch lengths of 1-inch wide nylon webbing and sear ends.

2. Sew one piece of webbing to outer side of each collar lobe casing in accordance with dimensions shown in figure 15-9.

3. Position and install snap fasteners in accordance with dimensions shown in figure 15-9, and ensure proper mate.

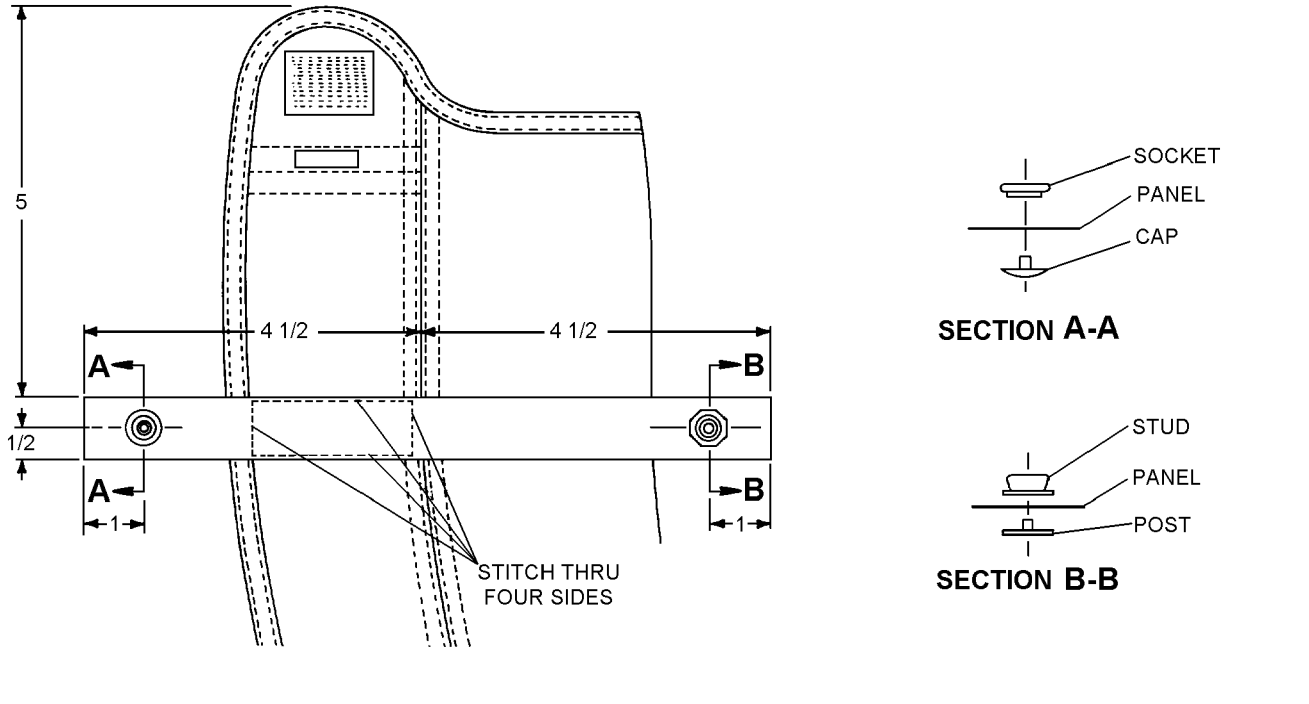


Figure 15-9. Addition of Webbing Loops

15-79. FABRICATION AND INSTALLATION OF WAIST LOBE ATTACHMENT PATCH. The following procedures pertain to the fabrication and installation of the left waist lobe attachment patch. These instructions are typical and are applicable for right waist lobe installations.

CAUTION

Only Polyurethane adhesives and Polyurethane-coated cloth patches shall be used on Polyurethane-coated LPU-21D/P life preserver assemblies.

Materials Required

Quantity	Description	Reference Number
12	Cap, Snap Fastener	MS27983-1 NIIN 00-891-9073
12	Socket, Snap Fastener	MS27983-2 NIIN 00-945-2577
12	Stud, Snap Fastener	MS27983-3 NIIN 00-276-4908
12	Post, Snap Fastener	MS27983-4 NIIN 00-276-4978
As Required	Cloth, Nylon, Polyurethane Coated	MIL-C-87178
As Required	V-Tape, One-inch	1957AS11-6
As Required	Adhesive, Polyurethane	MIL-A-17315 P/N UR-1092 NIIN 01-375-7855
As Required	Toluene	TT-T-548 NIIN 00-281-2002
	-or-	
	Methyl Ethyl Ketone (MEK)	TT-M-261 NIIN 00-281-2762

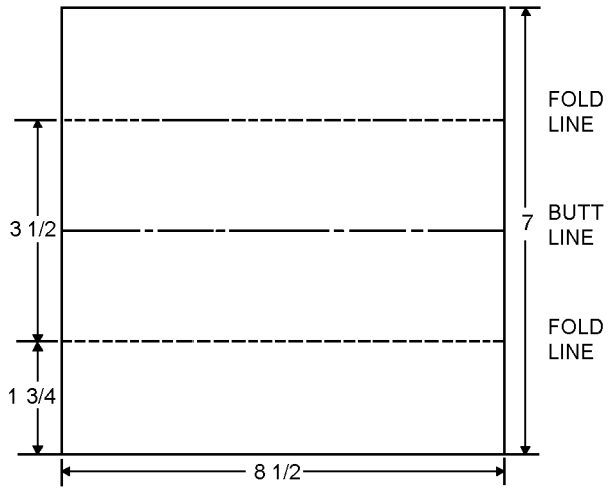
NOTE

See paragraph 15-63 for procurement information for polyurethane adhesive, UR-1092.

15-80. Bladder Attachment Patch. Procedures for fabrication and installation of the bladder attachment patch are as follows:

1. Spread left waist lobe of deflated life preserver bladder on clean flat surface.

2. Fabricate attachment patch using polyurethane coated nylon cloth.



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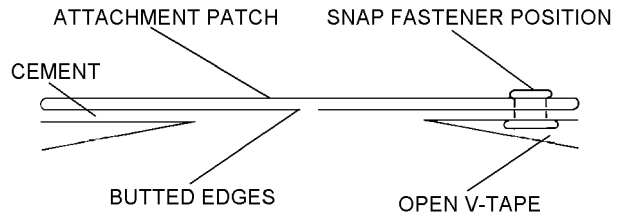
Step 2 - Para 5-80

3. Fold cloth at fold lines, with coated side inside, butt edges together at butt line to form attachment patch 8 1/2 inches by 3 1/2 inches. Crease edges at fold line.

4. Complete the basic attachment patch form by applying adhesive to coated side of the patch in accordance with paragraph 15-64, fold and butt together edges as in step 3.

5. Cut two 8 1/2-inch lengths of one-inch V-tape and cement one length on each side of the attachment patch, open V to the outside. Follow cementing procedures in paragraph 15-63.



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Step 5 - Para 15-80

6. Measure and punch six holes in attachment patch for installation of six uni-directional snap fastener sockets (figure 15-10).

7. Install six uni-directional snap fastener sockets with dots on buttons oriented to center point of attachment patch (figure 15-10).

8. Position attachment patch on waist lobe as indicated in figure 15-10 and mark the area on waist lobe. Apply polyurethane adhesive in accordance with paragraph 15-63 and attach the patch to waist lobe.

15-81. Installation of Casing Attachment Patch Snap Fastener Studs. Install six uni-directional snap fastener studs in waist lobe casing as follows:

1. Spread casing assembly flat on clean level surface. Hold in flat non-distorted position using thumb tacks or other available means not harmful to fabric.

2. Measure and mark snap fastener positions using dimensions in figure 15-11. Remove restraints from casing.

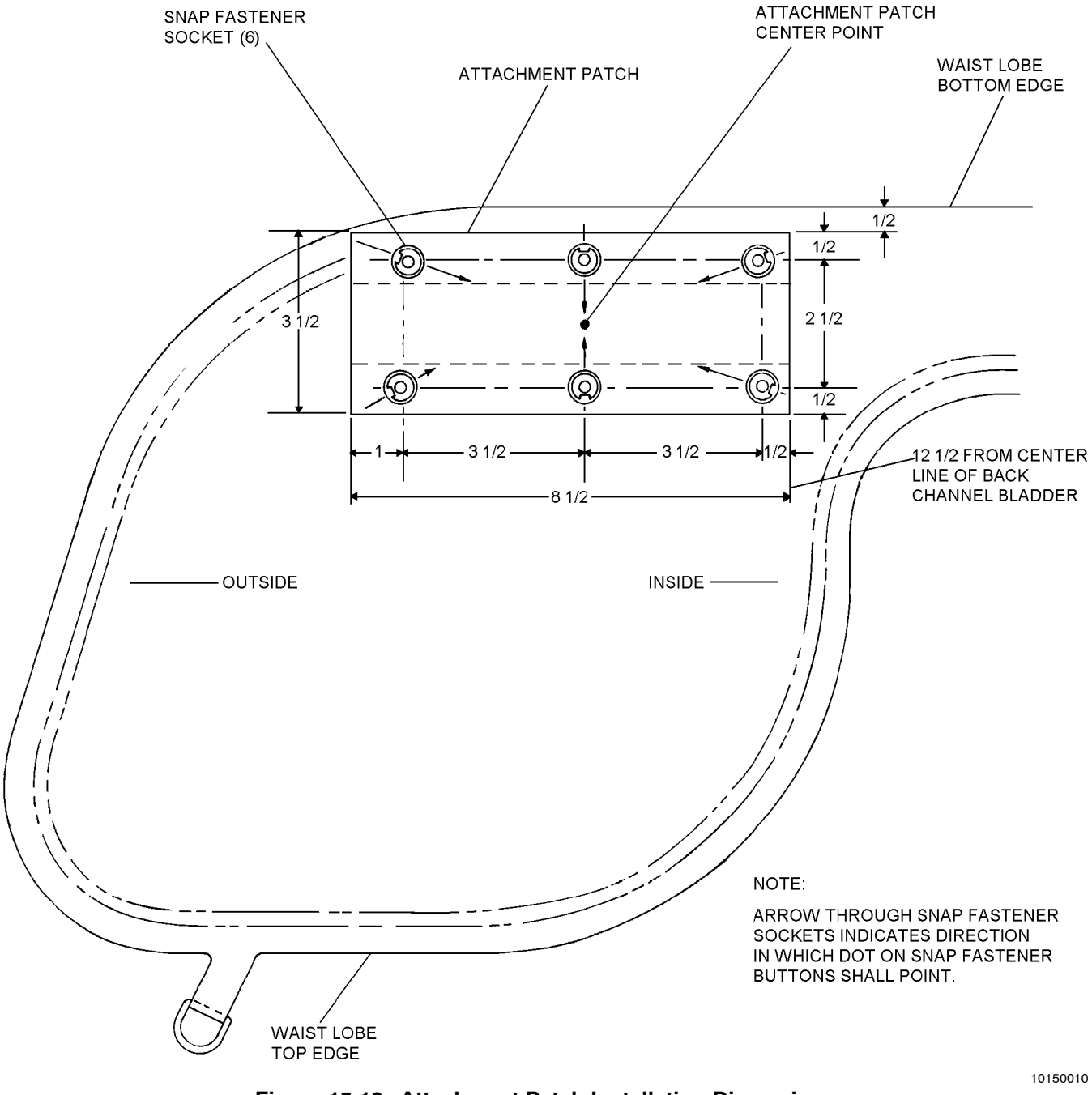


Figure 15-10. Attachment Patch Installation Dimensions

3. Install six snap fastener studs and eyelets.

15-82. FABRICATION AND INSTALLATION OF LOCKING PIN COVER (LIFE PRESERVERS WITHOUT NO. 3 SPUR GROMMET). Fabricate and install the locking pin cover as follows:

Materials Required

Quantity	Description	Reference Number
1	Socket, Snap Fastener	MS27981-3B NIIN 00-276-4966
1	Cap, Snap Fastener	MS27981-1B NIIN 00-276-4954

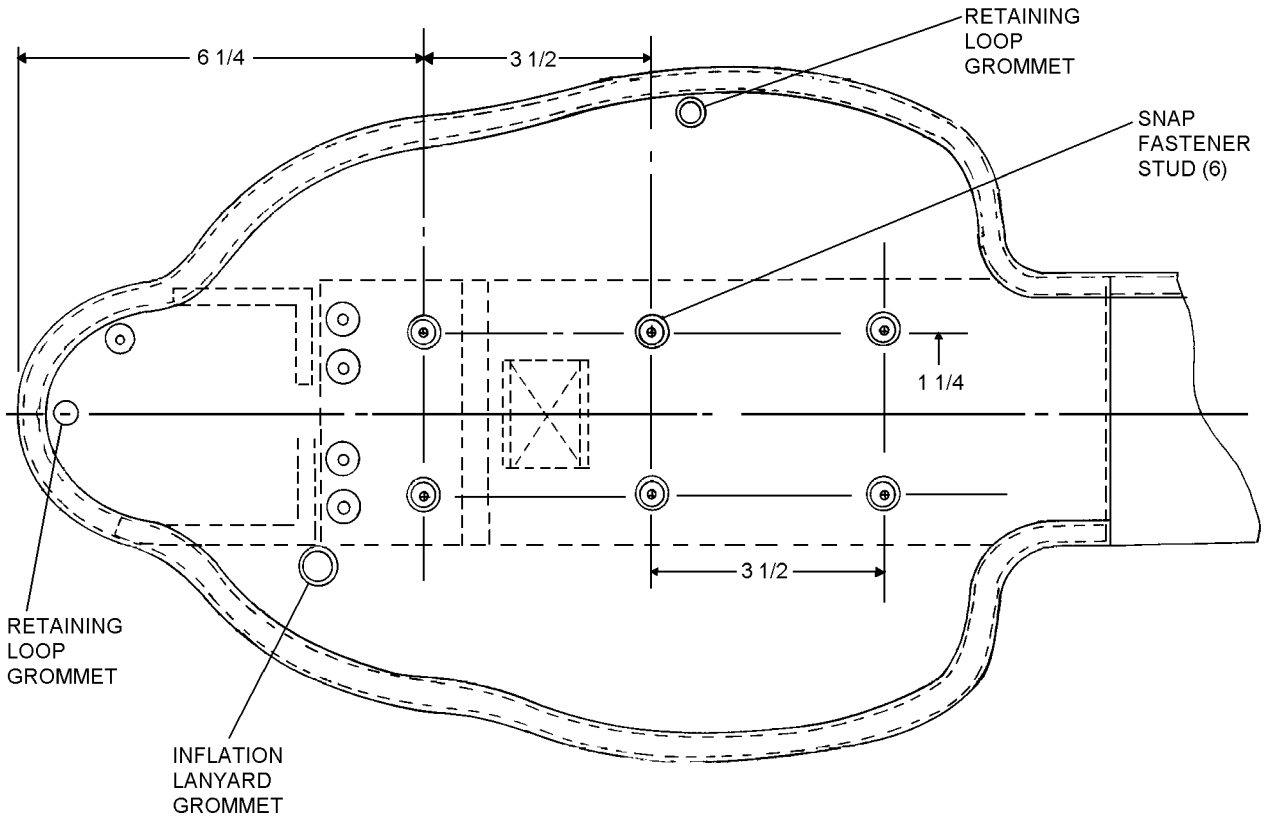


Figure 15-11. Installation Casing Attachment Patch Snap Fastener Studs

Materials Required

Quantity	Description	Reference Number
As Required	Cloth, Nylon Polyurethane-coated, Type I	MIL-C-83489 NIIN 01-335-3129
As Required	Thread, Stitching, Nylon, Type I or II, Size E	V-T-295 NIIN 00-204-3884
As Required	Tape, Binding, Nylon, 3/4-inch Wide, Sage Green 1551 Type III	MIL-T-5038 NIIN 00-176-8083

1. Cut basic locking pin cover from coated nylon cloth in dimensions shown in figure 15-12. Define form of locking pin cover using appropriate end of casing waist lobe assembly as pattern.

2. Reinforce fabric with single row stitching around entire perimeter of locking pin cover.

NOTE

Binding tape may be in one continuous strip or two sections.

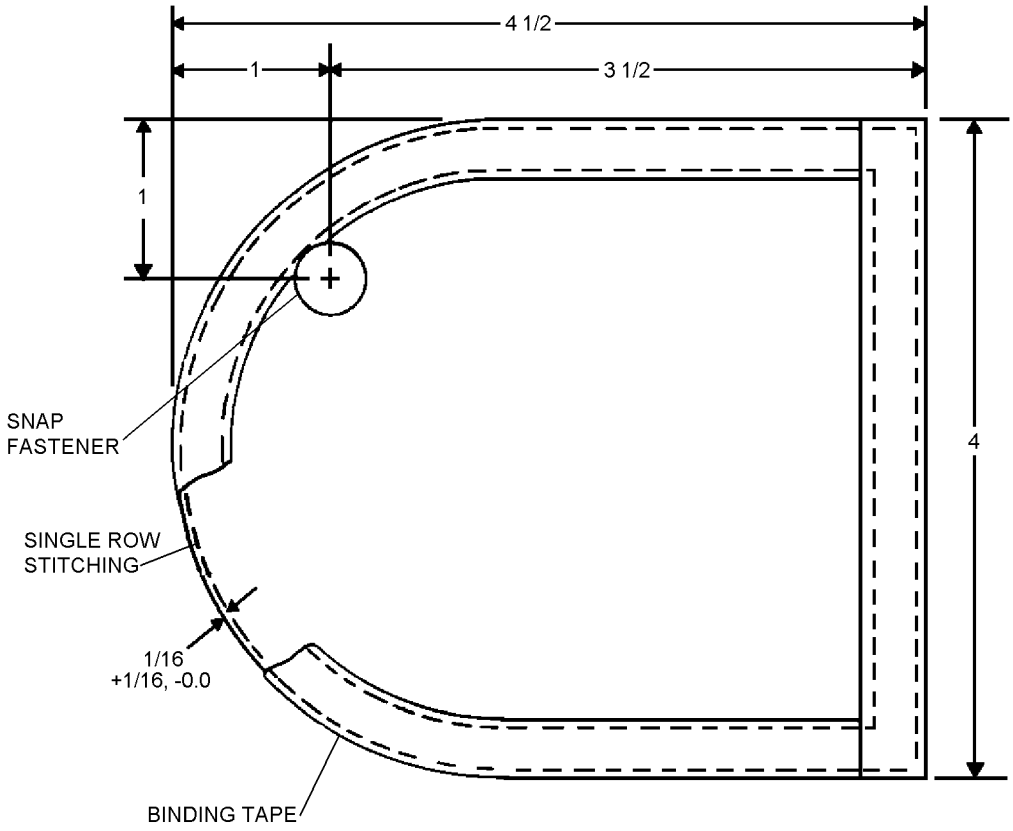
3. Apply 3/4-inch binding tape to perimeter of cover as shown in figure 15-12.

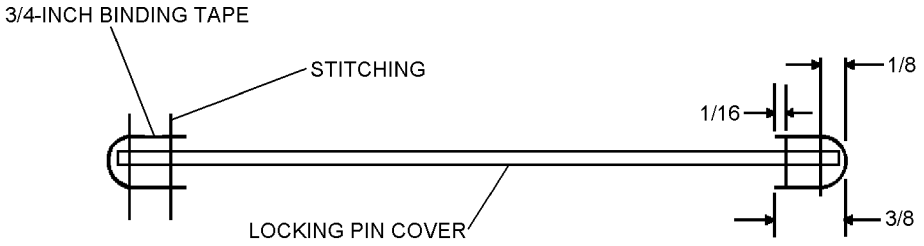
4. Align locking pin cover with mating surface of casing assembly and install in accordance with figure 15-13.

5. Mark snap fastener alignment and install locking pin cover, snap fastener socket and button.

NOTE

When properly aligned with casing assembly, the straight edge of locking pin cover will be butted 1/8-inch from edge of beaded inflation handle snap fastener stud installation (casing main panel subassembly).





BINDING TAPE INSTALLATION

RIGHT HAND SHOWN - LEFT HAND OPPOSITE

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Figure 15-12. Fabrication of Locking Pin Cover LPU-21D/P

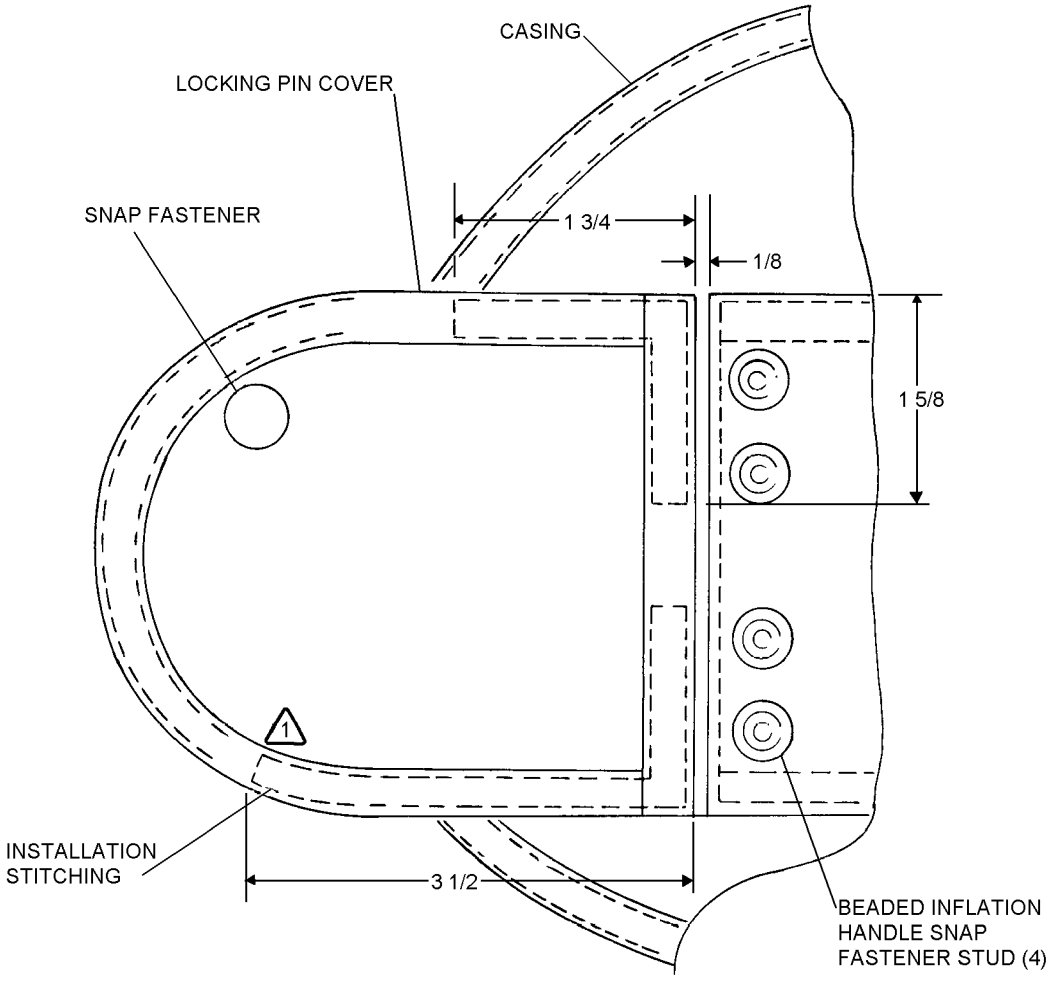


Figure 15-13. Locking Pin Cover Installation LPU-21D/P

15-82A. FABRICATION OF 6-INCH EXTENSION PANEL FOR CASING ASSEMBLY (LPU-21D/P LIFE PRESERVER). Fabrication instructions are as follows:

NOTE

Extension panels supplied in kits measure nine inches installed length. Panels may be modified (lengthwise) to obtain best fit for individual aircrewmembers. For ALSS Pool use, modifying SV-2B/LPU-21D assemblies with extension panels in several sizes (lengths) to accommodate aircrew needs is authorized. When issued together, the SV-2B and casing assembly extension panels should be of matching lengths.

Upon completion of the modification the LPU-21D/P shall be redesignated as the LPU-35/P Life Preserver.

Materials Required

Quantity	Description	Reference Number
As Required	Duck Cloth, Nylon	MIL-C-7219 (CAGE 81349) NIIN 00-765-2863
As Required	Tape, Nylon, 1-inch, Type IV,	MIL-T-5038 (CAGE 81349) NIIN 00-261-8579
As Required	Tape, Hook Fastener (Black) 2-inch	MIL-F-21840 (CAGE 81349) NIIN
As Required	Tape, Pile Fastener (Black) 2-inch	MIL-F-21840 (CAGE 81349) NIIN 00-405-2265
As Required	Thread, Nylon, Size E	V-T-295 (CAGE 81348) NIIN 00-248-9715
2	D-Rings	MS51925-2
As Required	Ink, Marking, Laundry, Black	SPE-92 NIIN 00-161-4229

NOTE

All stitching shall be with size E nylon thread using 8 to 10 stitches per inch, back stitching one inch.

1. Sew 3/4-inch hem along each 12-inch length of 5 1/2 x 12-inch nylon duck cloth to form 4 x 12-inch panel (figure 15-13A).

2. Place panel with 3/4-inch hem down on smooth surface. Measure and mark four equal 3-inch segments (see figure 15-13A).

3. Fold one 3-inch end segment under and sew in place to form 4 x 9-inch panel. Sew 1/16-inch hem along length of each side of panel and folded end.

4. Using 5 1/2-inch length of 1-inch wide nylon webbing tape, pass tape through D-ring MS51925-2 and adjust ends to equal length (2 3/4 inches)

5. Sew tape and D-ring (using boxstitch) to 3-inch fold-back section 7/16 inch from the edge of the panel with tape ends flush with end of 3-inch fold-back. See figure 15-13B. Approximately 1/3 of D-ring loop should extend beyond end of panel.

6. Repeat steps 4 and 5 to attach second D-ring to opposite side of panel.

7. Sew 3 1/4-inch length of two-inch hook fastener tape to top of panel 1/2 inch from end of panel with tape ends 1/4 inch from edges of panel (figure 15-13B).

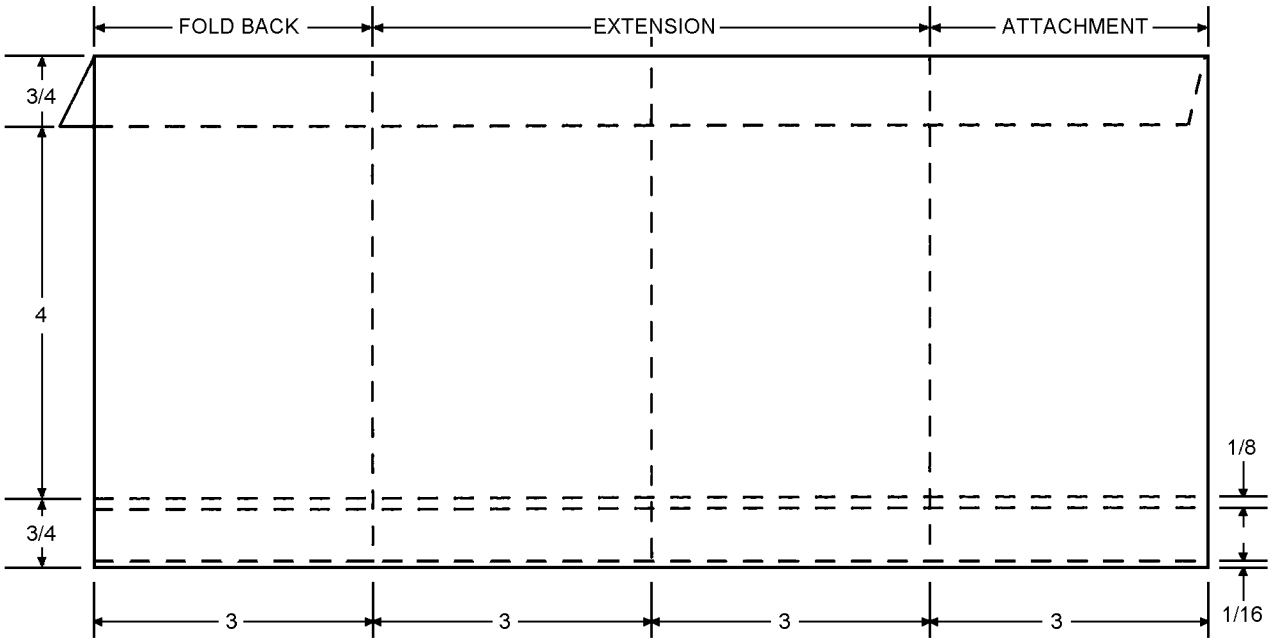
8. Sew 3 1/2-inch length of two-inch pile fastener tape to top of panel 1/2 inch from end of fold-back section (figure 15-13B) with tape ends 1/4 inch from edges of panel.

9. Sew 3 1/2-inch length of two-inch pile fastener tape to bottom of the panel directly beneath and in the same manner as in step 8.

10. Sew 3 1/2-inch length of two-inch hook fastener tape to bottom of the panel 1/4 inch from fold line (casing webbing and panel overlap point) with tape end 1/4 inch from edges of panel (figure 15-13B).

11. Position the assembled extension panel with the attachment end (figure 15-13A) under the casing webbing (figure 15-13B) with D-rings of extension panel facing down as shown. Stitch sides and end of panel to casing webbing. Stitch end of casing webbing and extension panel together.

12. To stow the extension panel, see figure 15-13B and fold panel down and under so bottom pile strip mates with hook tape on bottom of casing webbing. Then fold panel forward and up so remaining pile fastener tape mates with remaining hook tape.



TOP SIDE SHOWN

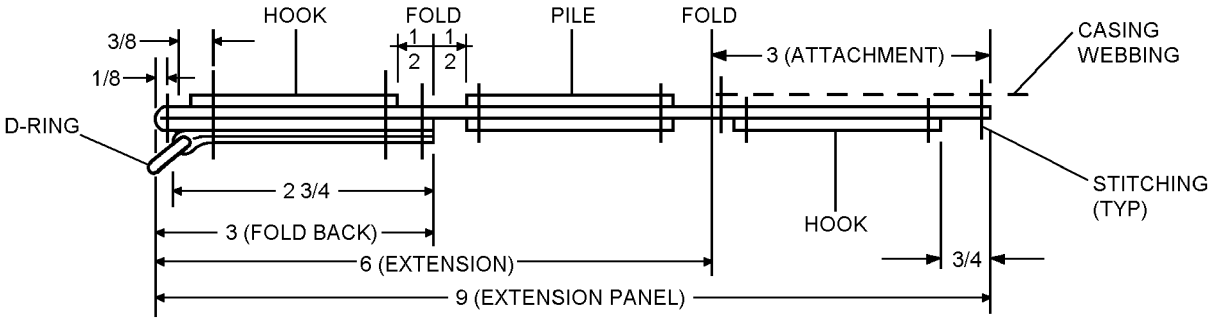


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Figure 15-13A. Fabrication of Casing Assembly Extension Panel

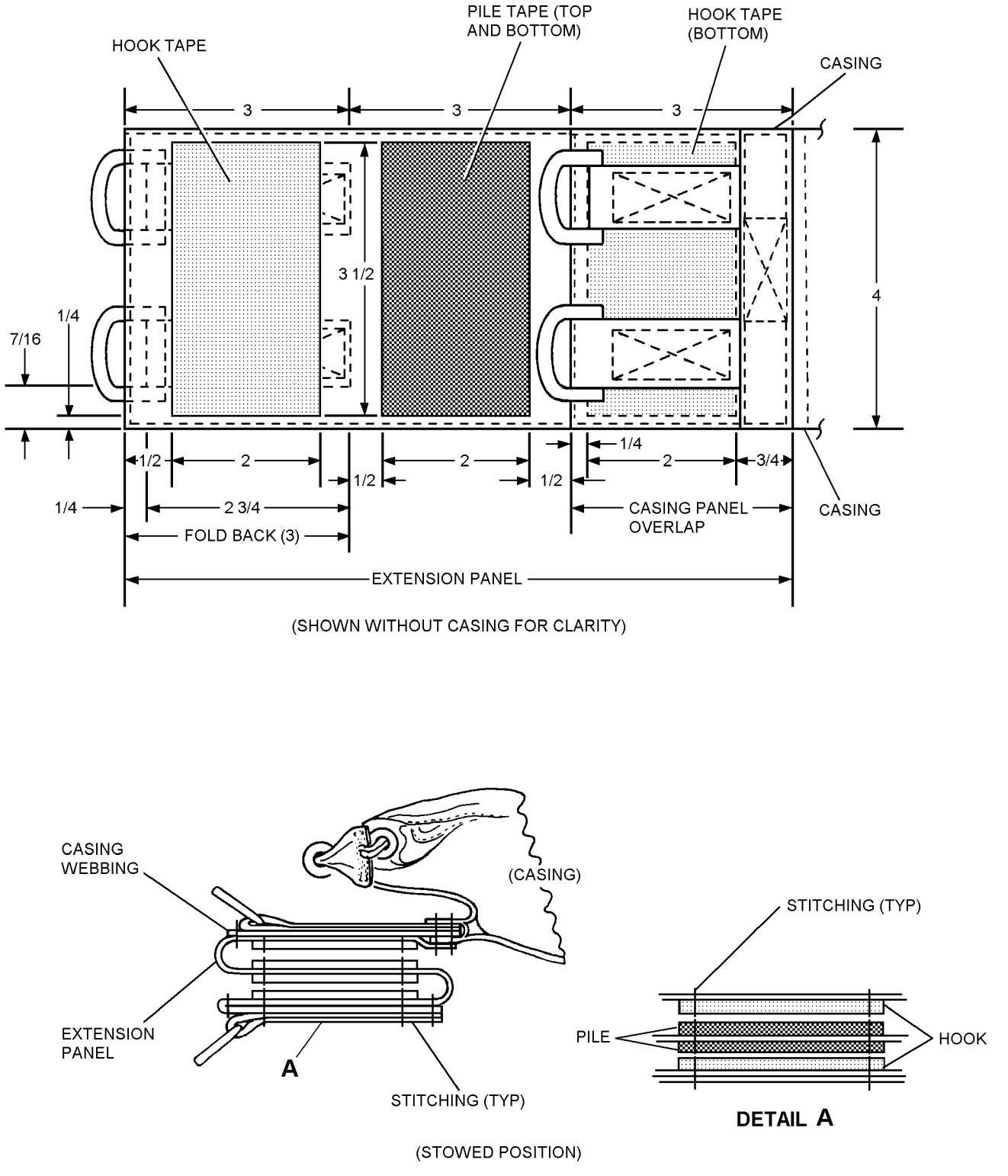

Figure 15-13B. Casing Assembly Extension Panel Dimensions

15-83. REPLACEMENT OF COLLAR LOBE UNI-DIRECTIONAL SNAP FASTENERS AND WEBBING. Fabricate and install snap fasteners and shoulder strap webbing as follows:

Materials Required

Quantity	Description	Reference Number
As Required	Webbing, Nylon, Type IV, 1-inch Wide	MIL-T-5083 NIIN 00-261-8579
4	Socket, Snap Fastener	MS27983-2 NIIN 00-945-2577
4	Cap, Snap Fastener	MS27983-1 NIIN 00-891-9073
As Required	Loop, Slide	MS51940-3B
As Required	Thread, Nylon, Type I or II, Size E	V-T-295 NIIN 00-204-3884

1. Cut 14-inch length of nylon webbing and sear each end.

2. Form a three-layer end-tab in accordance with figure 15-14. Reeve free end through slide loop.

3. Position free end of webbing on collar lobe casing and stitch in place as indicated.

NOTE

Ensure dot on button of uni-directional snap fastener is installed with dot-side of buttons facing.

4. Install two uni-directional snap fastener sockets with dots on buttons on the inside (facing) as shown in figure 15-14.

15-84. REPLACEMENT OF FLOTATION BLADDER COLLAR LOBE UNI-DIRECTIONAL SNAP FASTENER STUD. Replacement of the bladder collar lobe snap fastener studs also entails removal of cover and base patches securing the snap fastener and fabrication and installation of new patches. Procedures are as follows:

CAUTION

Only Polyurethane adhesives and Polyurethane-coated cloth patches shall be used on Polyurethane-coated LPU-21D/P life preserver assemblies.

Materials Required

Quantity	Description	Reference Number
2	Stud, Snap Fastener	MS27983-3 NIIN 00-276-4908
2	Post, Snap Fastener	MS27983-4 NIIN 00-276-4978
As Required	Cloth, Nylon, Polyurethane-coated	MIL-C-83489 NIIN 01-335-3129
As Required	Adhesive, Polyurethane	MIL-A-47315 P/N UR-1092
As Required	Toluene	TT-T-548 NIIN 00-281-2002
	-or-	
As Required	Methyl Ethyl Ketone (MEK)	TT-M-261 NIIN 00-281-2762
As Required	Talc, Technical	MIL-T-50036A NIIN 01-080-9589

WARNING

Do not use toluene or MEK near open flame, heat, or electrical sparks. Avoid prolonged contact with skin or breathing of fumes. Use only in well-ventilated area.

NOTE

Toluene shall be the primary solvent used in the fabrication or repair of this assembly. MEK may be used if Toluene is not available. Always use solvents sparingly and wipe up excess solvents; do not allow to dry by evaporation.

1. Apply Toluene or MEK solvent to loosen cover and base patches. Remove loosened patches from life preserver flotation bladder and discard (figure 15-15).

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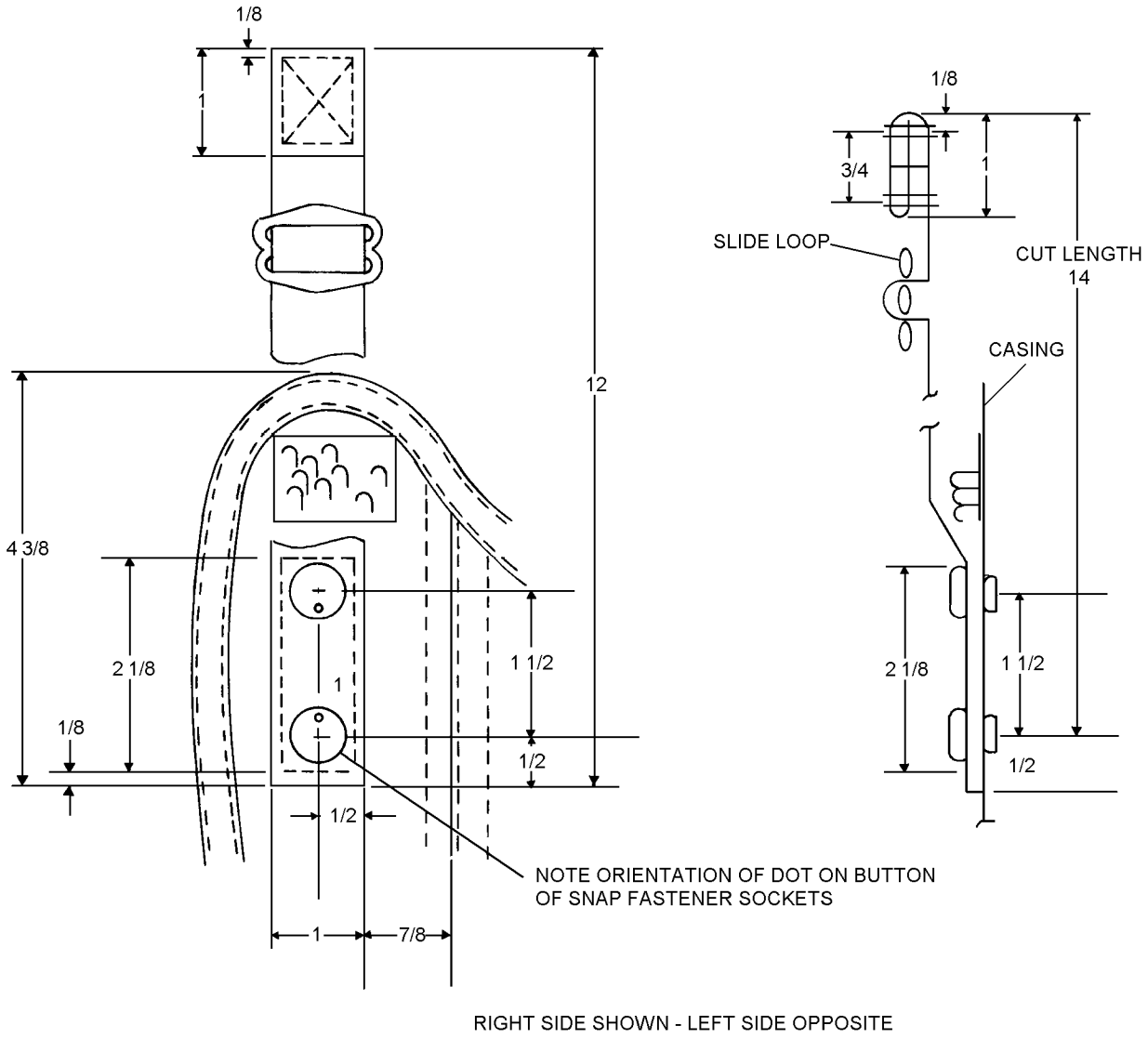

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Figure 15-14. Collar Casing Shoulder Strap Fabrication and Installation

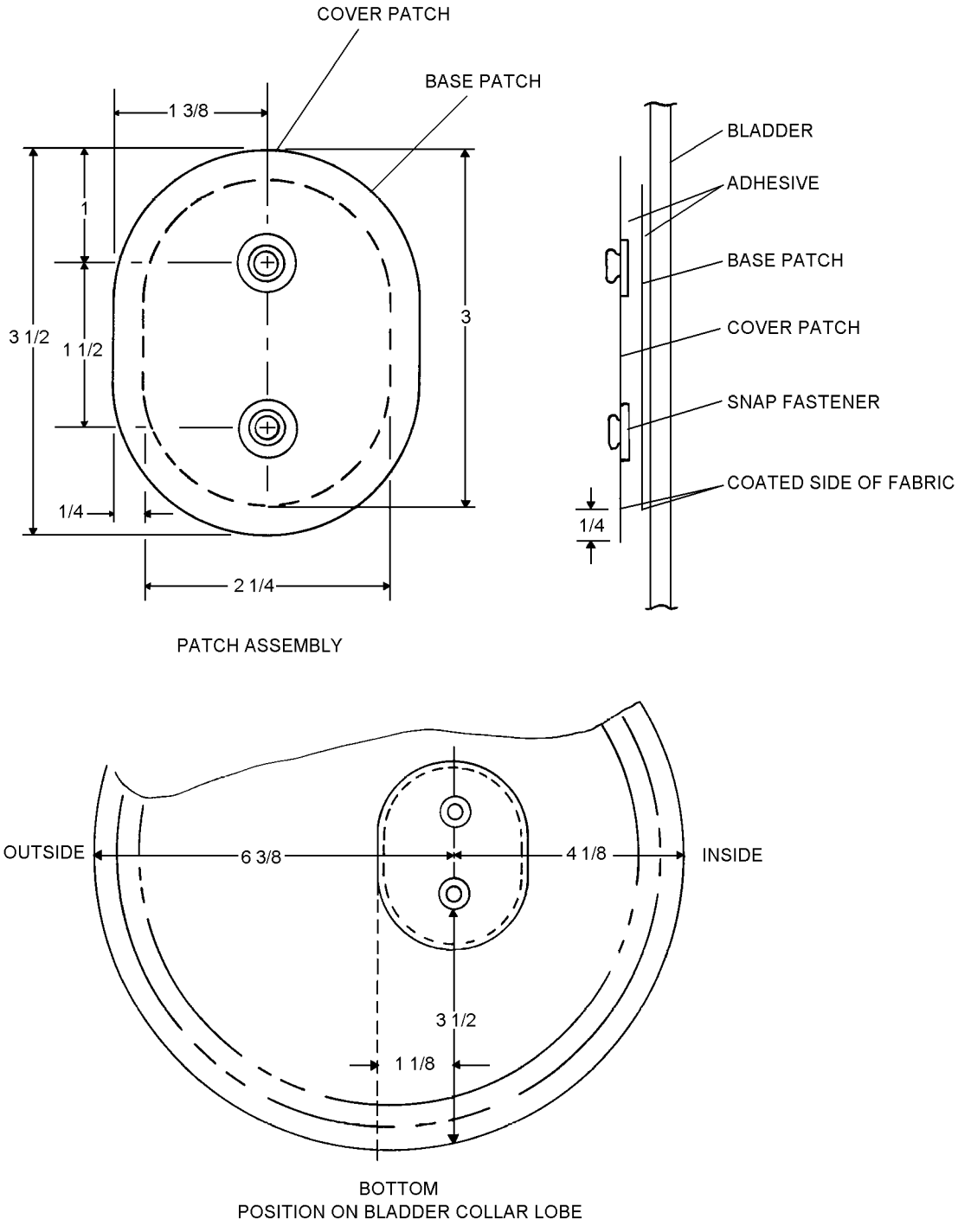

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Figure 15-15. Replacement of Flotation Bladder Collar Lobe Snap Fastener Studs

2. Fabricate new cover and base patches from coated nylon cloth (figure 15-15).

3. Install two uni-directional snap fastener studs on cover patch (figure 15-15).

4. Cement base patch uncoated surface to coated surface of cover patch using adhesive following procedures in paragraph 15-63.

NOTE

Properly oriented base patch will leave 1/4 inch perimeter of cover patch coated surface exposed (figure 15-15).

5. Ensure proper orientation of cover and base patch assembly (figure 15-15) and cement coated surface to life preserver flotation bladder following procedures in paragraph 15-63.

15-85. PACKING PROCEDURE FOR LPU-21D/P LIFE PRESERVER ASSEMBLY.

NOTE

The LPU-21D/P life preserver assembly shall be packed by qualified personnel at the lowest level of maintenance possible.

15-86. To pack an LPU-21D/P life preserver assembly, proceed as follows:

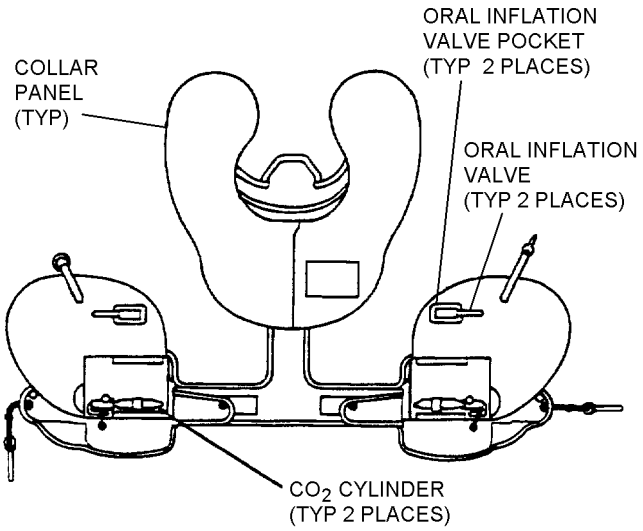
Materials Required

Quantity	Description	Reference Number
As Required	Talc, Technical	MIL-T-50036A NIIN 01-080-9589
As Required	Cord, Nylon Type I	MIL-C-5040 NIIN 00-240-2154
As Required	Thread, Nylon Size A	V-T-295 NIIN 00-204-3803
As Required	Thread, Nylon Size E	V-T-295 NIIN 00-204-3884
As Required	Thread, Nylon Size 3, Waxed	V-T-295 NIIN 00-262-2775

1. Ensure that preserver has been inspected in accordance with paragraph 15-26.

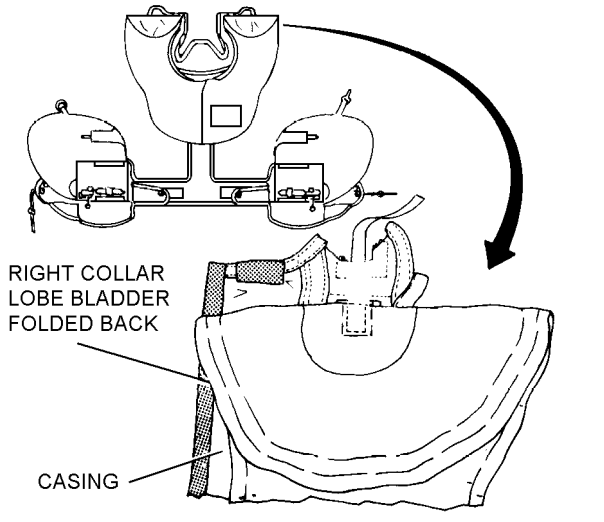
2. Prior to packing, ensure that chambers are thoroughly deflated. Ensure all bladder surfaces front and rear are lightly dusted with talc.

3. Oral inflation valve shall be locked by knurled ring and placed in oral valve pocket. Position life preserver assembly with collar panel folded down.



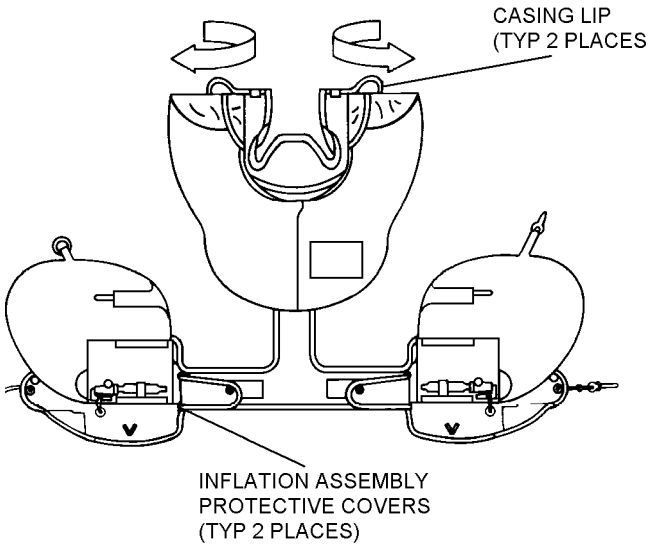
Step 3 - Para 15-86

4. Connect the snap fasteners on the bladders collar lobes with those on the casing and fold collar edge over snap fasteners in casing.



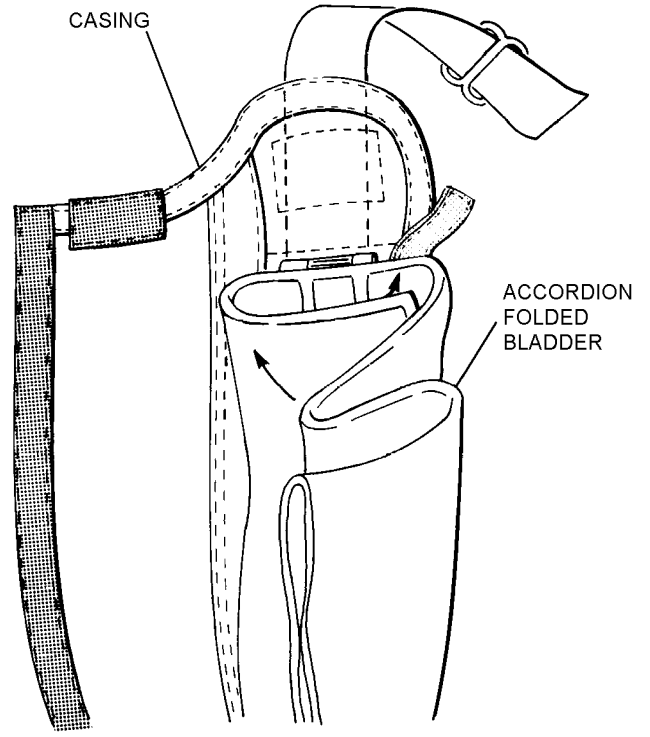
Step 4 - Para 15-86

5. Fold over edge of collar panels.



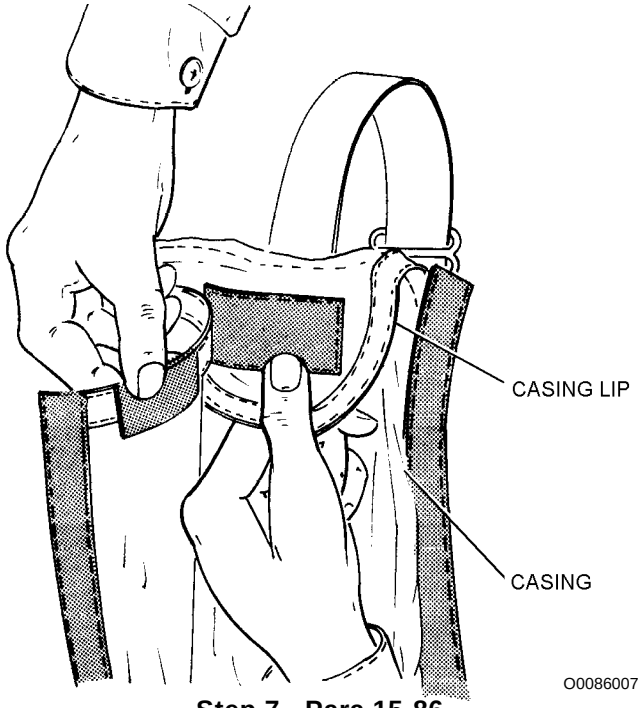
Step 5 - Para 15-86

6. Accordion-fold sides of collar lobes into collar casing.



Step 6 - Para 15-86

7. Tuck in casing lip and secure collar casing with hook and pile tape.

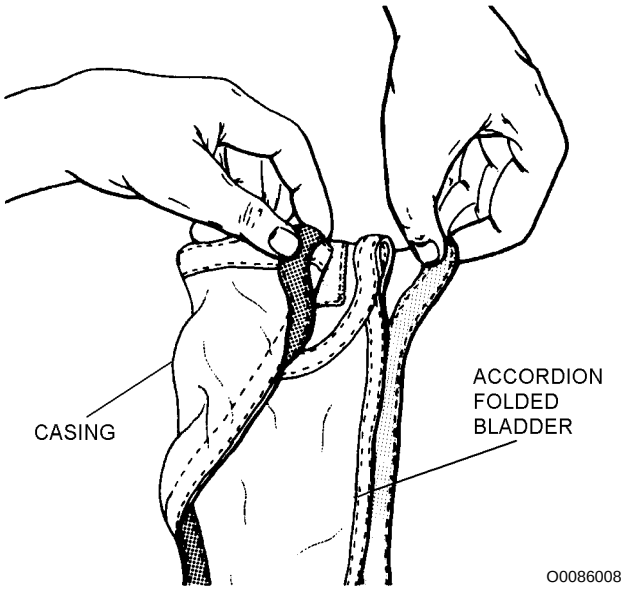


Step 7 - Para 15-86

NOTE

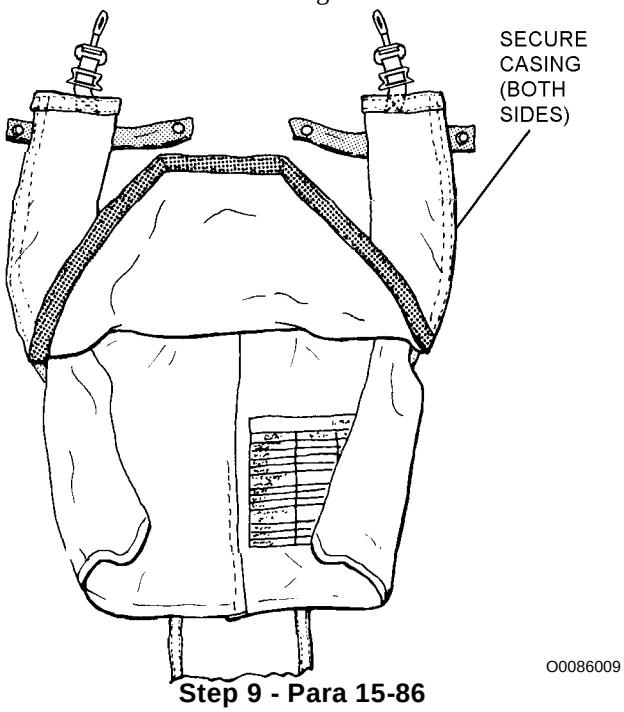
The unsewn 3/8 to 1/2 inch end tab of hook tape located on the front edge of the collar lobe casing shall be attached to the mating pile tape on the collar casing cover.

8. Close collar lobe section by securing the 3/8 to 1/2 inch unsewn portion of hook tape to pile tape casing cover.



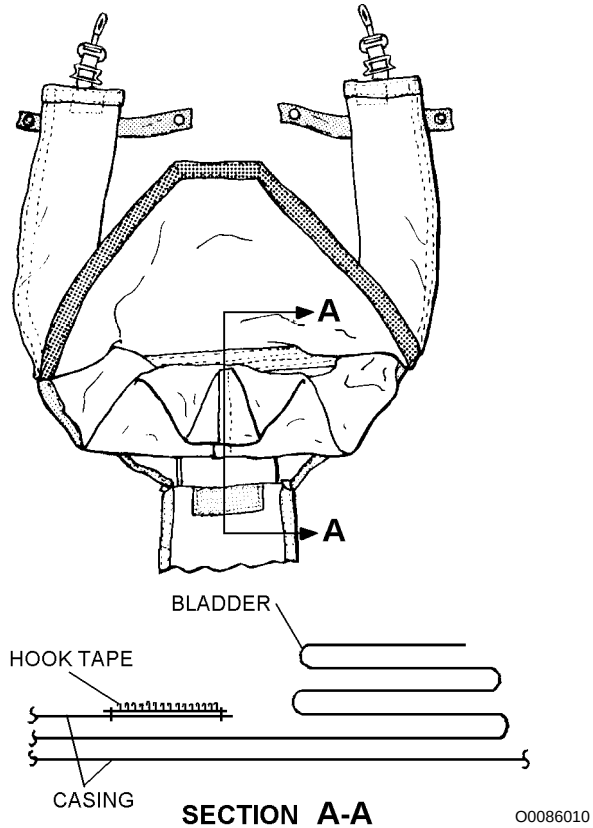
Step 8 - Para 15-86

9. Secure hook and pile tape approximately 8 inches along casing cover edge, securing the accordion-folded bladder within casing cover.



Step 9 - Para 15-86

10. Accordion-fold bottom of collar lobe into collar casing.

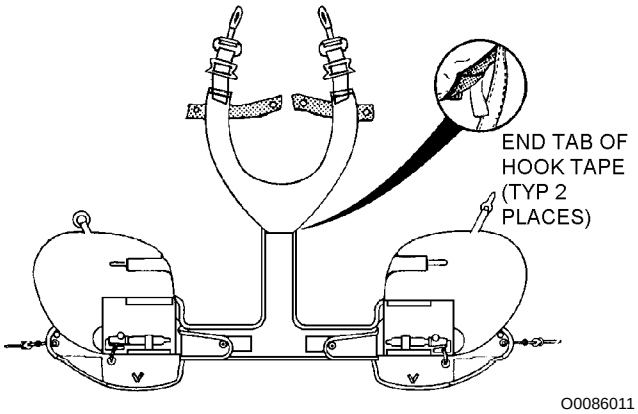


Step 10 - Para 15-86

NOTE

The unsewn 3/8 to 1/2 inch end tab of hook tape located on the rear edges of the collar lobe casing shall be attached to the mating pile tape on the collar casing cover.

11. Continue securing hook and pile tape along casing cover edge and casing lip, ending on unsewn end tabs of hook tape, completely enclosing collar lobe bladder within casing cover. Ensure all hook tape is engaged with pile tape and not exposed.

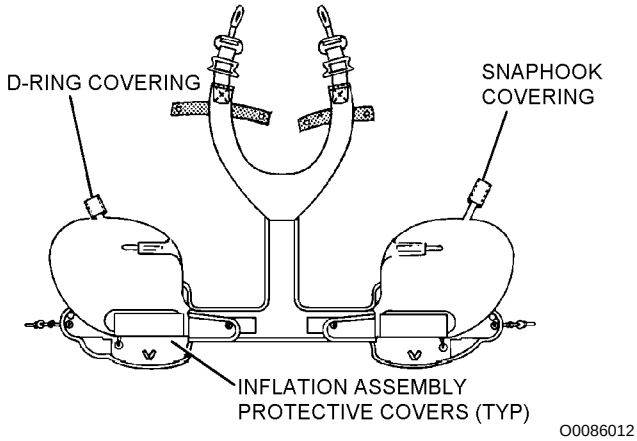


Step 11 - Para 15-86

WARNING

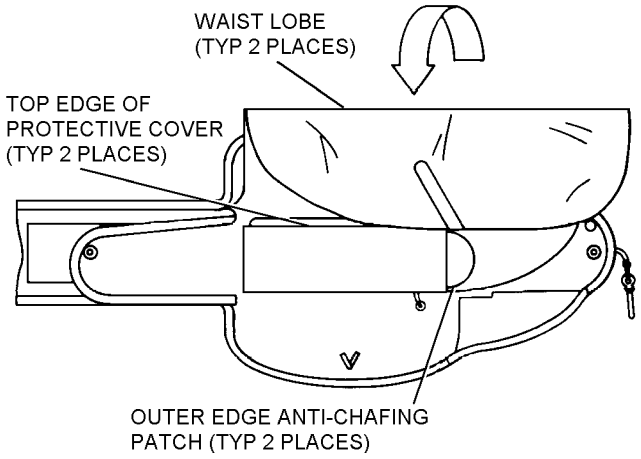
Do not use rubber bands to hold slip-on pockets on D-ring and snaphook fittings.

12. Insert snaphooks and D-ring into slip-on pockets. Close protective cover around inflation assembly and secure with hook and pile tape.



Step 12 - Para 15-86

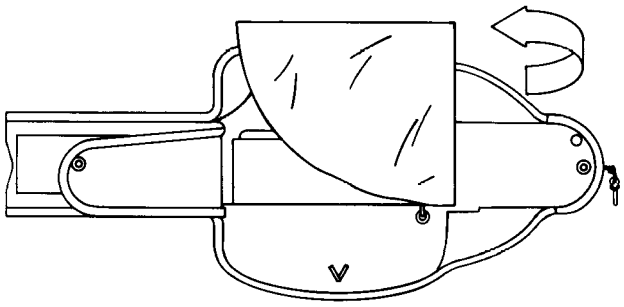
13. Fold waist lobes over to top edge of protective covers.



O0086013

Step 13 - Para 15-86

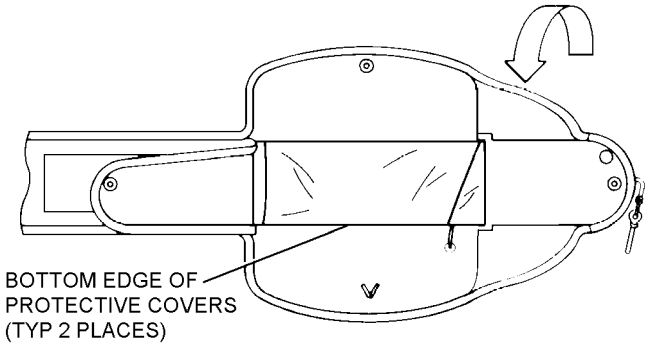
14. Fold waist lobes over to outboard edge of a chafing patch.



O0086014

Step 14 - Para 15-86

15. Fold waist lobes over to bottom edge of protective covers.



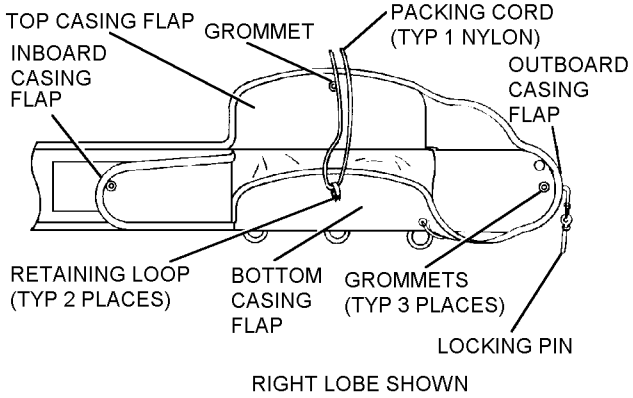
O0086015

Step 15 - Para 15-86

NOTE

Packing cord shall be used to aid in closing life preserver casing.

16. Fold up bottom casing flap containing retaining loop. Insert an 8-inch length of Type I nylon cord through retaining loop (figure 15-16).



10150016

Figure 15-16. LPU-21D/P Packing Nomenclature

17. Pass ends of packing cord through grommet located in top casing flap (figure 15-16). Pull retaining loop through grommet.

18. Fold inboard casing flap over. Pass the packing cord through the grommet. Pull retaining loop through grommet (figure 15-17).

19. Route locking pin under locking pin cover flap.

WARNING

To avoid possible injury when closing casing of right waist lobe, do not place palm of hand on waist closure snaphooks.

20. Fold outboard casing flap over. Pass packing cord through grommets and pull retaining loop through grommet far enough to accept locking pin. Insert locking pin through retaining loop and into pin keeper loop. Remove packing cord.

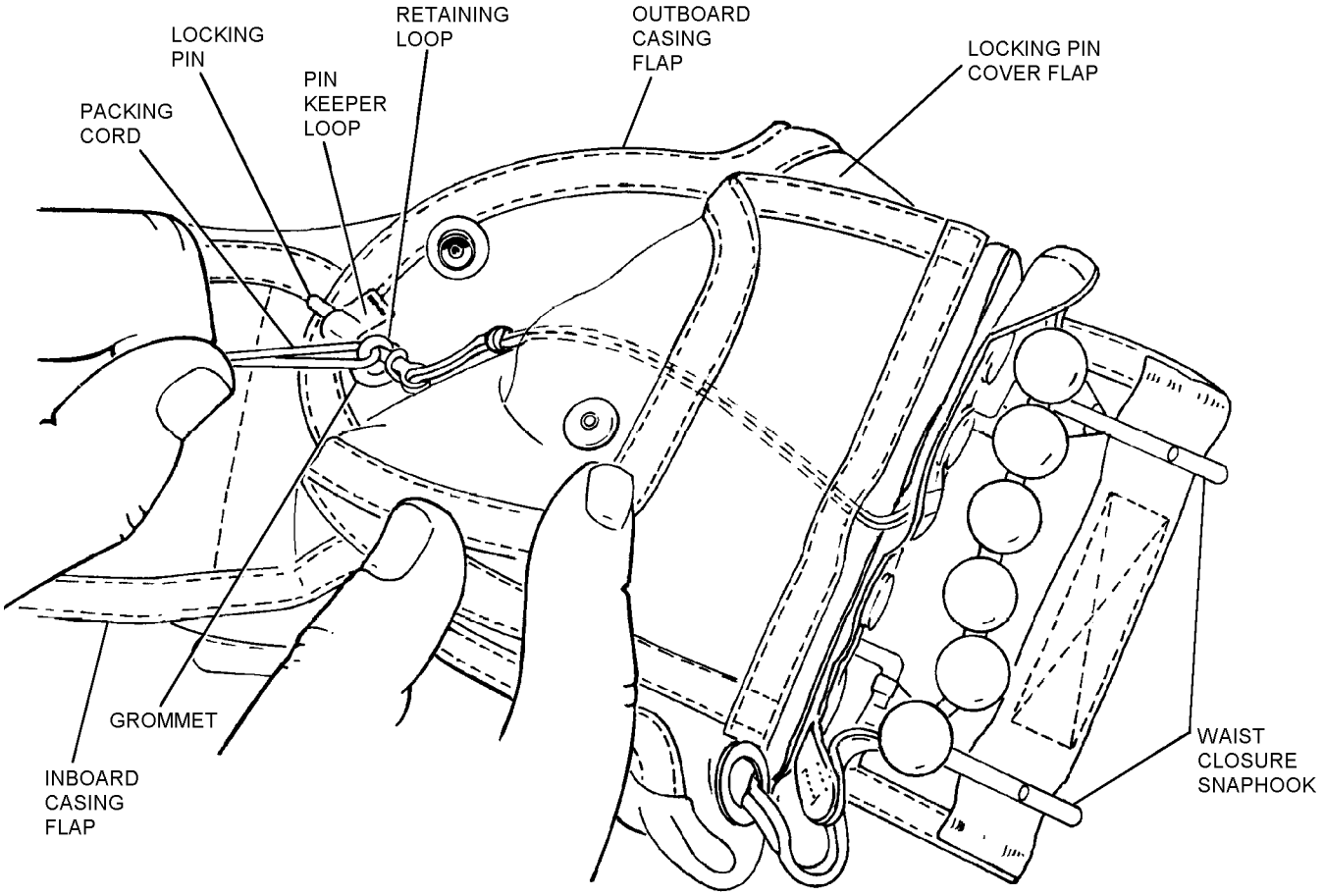
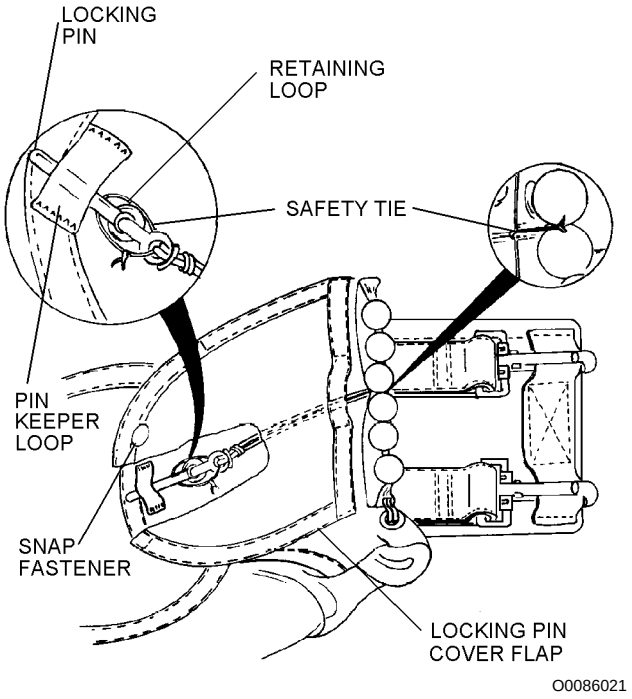


Figure 15-17. Packing LPU-21D/P Life Preserver

21. Safety-tie eye of locking pin to retaining loop with one turn of size A nylon thread, single. Safety-tie beaded inflation handle with one turn of size E nylon thread, single. Draw thread sufficiently to permit a 1/2 ±1/8 inch space between middle beads and webbing on preserver. Tie ends of both safety ties with a surgeon's knot followed by a square knot.



Step 21 - Para 15-86

22. Close locking pin cover flap snap fastener.

NOTE

NAVAIR 13-1-6.5, Rescue and Survival Equipment, contains information on inspection and replacement of survival items.

23. Adjust collar lobe snap hooks to shortest position by feeding webbing through slide loop and snap hook. Tack webbing around center bar of slide loop using waxed three cord, single, two turns, secure with surgeon's knot followed by a square knot. Fold bitter end of webbing (excess) in half one or two times so bitter end of webbing is butted against bar of slide loop. Tack folded bitter end in center using waxed three cord, single, one turn, secure with surgeon's knot followed by a square knot.

24. When required, ensure that survival items have been inspected for expiration dates and damage.

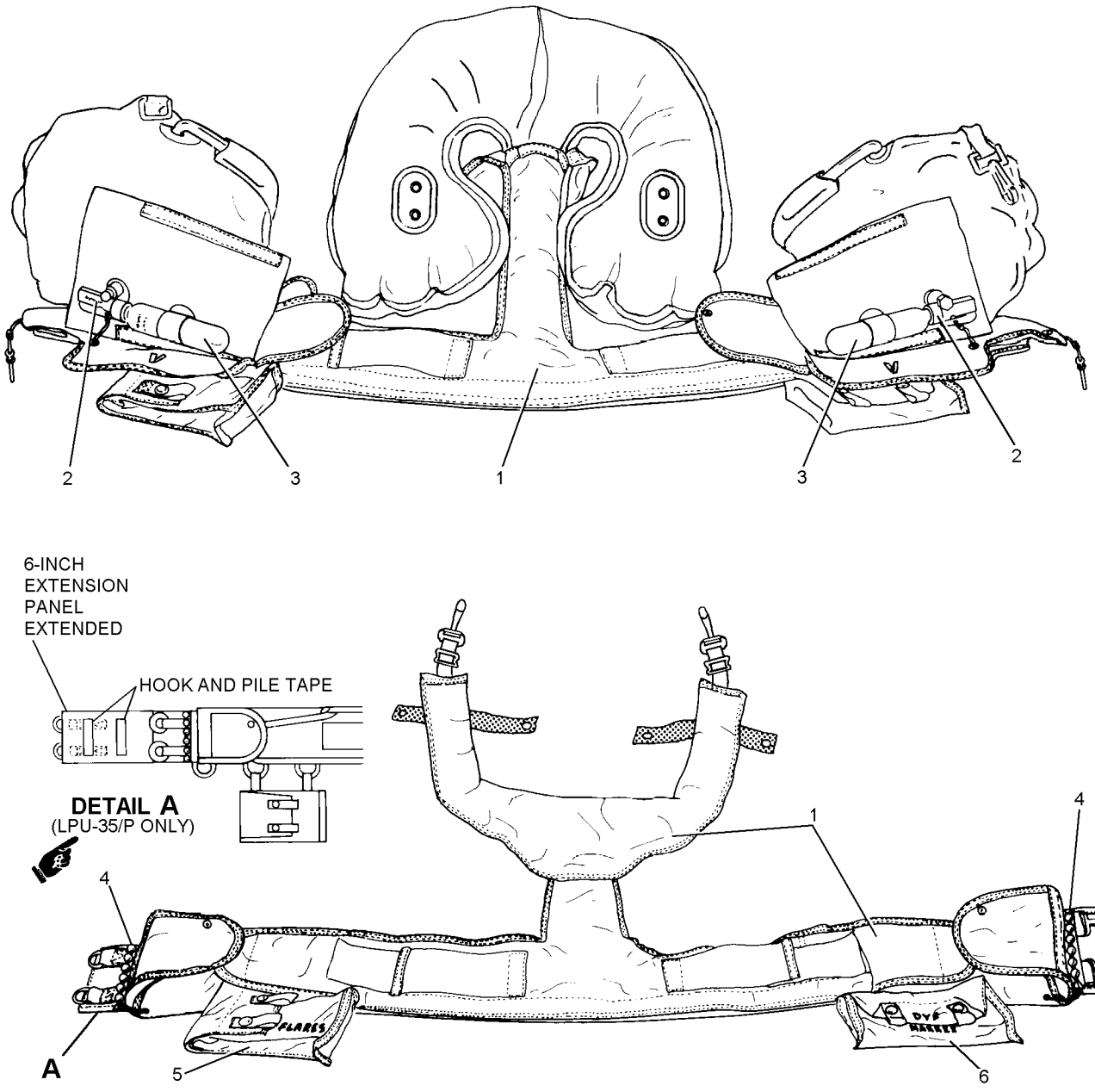
25. Make necessary entries on appropriate form in accordance with OPNAVINST 4790.2 Series.

Section 15-4. Illustrated Parts Breakdown (IPB)

15-87. GENERAL.

15-88. This section lists and illustrates the assemblies and detail parts of the LPU-21D/P Life Preserver assembly.

15-89. The Illustrated Parts Breakdown should be used during maintenance when requisitioning and identifying parts.



10150018

Figure 15-18. LPU-21D/P and LPU-35/P Life Preserver Assembly, Illustrated Parts Breakdown

Figure and Index Number	Part Number	Description 1 2 3 4 5 6 7	Units Per Assembly	Usable On Code
15-18	1957AS102-1 (NIIN 01-406-1583)	LPU-21D/P LIFE PRESERVER	REF	
	1957AS100	LPU-35/P LIFE PRESERVER (Note 3)	REF	
-1	1957AS104-1 (NIIN 01-399-1267)	. CASING ASSEMBLY, LPU-21D/P	1	
-2	MIL-I-25370 (NIIN 00-561-0094)	. INFLATION ASSEMBLY, Type II	2	
	105AS100-3	. . GASKET, Top (30003) (Note 1)	2	
	105AS100-4	. . GASKET, Bottom (30003) (Note 1)	2	
	105AS100-2	. . GASKET, Seat Seal (30003) (Note 1)	2	
-3	MIL-C-25369 (NIIN 01-077-8773)	. . CO_2 CYLINDER, Type III, 35 Gram	2	
-4	975AS121-11 (NIIN 00-120-4752)	. . BEADED INFLATION HANDLE, Type I	2	
-5	68A73D3-61 (NIIN 00-118-6187)	. FLARE POUCH ASSEMBLY (Note 2)	1	
-6	68A73D2-41 (NIIN 00-118-6186)	. DYE MARKER POUCH ASSEMBLY . . . . . (Note 2)	1	

Notes:
1. Top, bottom, and seat seal gaskets are obtained from Valve Stem and Seat Seal Kit, P/N 105AS100-5, NIIN 00-498-6964, which contains two top, two bottom, and two seat seal gaskets.
2. Optional equipment at the discretion of the Squadron Commander.
3. The LPU-35/P is a modified LPU-21D/P. It is not a stocked item and cannot be ordered through supply channels.

NUMERICAL INDEX

Part Number	Figure and Index Number	SM&R Code
MIL-C-25369	15-18-3	PAGZZ
MIL-I-25370	15-18-2	PAGZZ
105AS100-2	15-18-2	
105AS100-3	15-18-2	
105AS100-4	15-18-2	
1957AS100	15-18	
1957AS102-1	15-18	PAOGG
1957AS104-1	15-18-1	PAGZZ
68A73D2-41	15-18-6	PAGZZ
68A73D3-61	15-18-5	PAGZZ
975AS121-11	15-18-4	PAGZZ

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